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SHARP 14A1-W SERVICE MANUAL

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SHARP

SERVICE MANUAL

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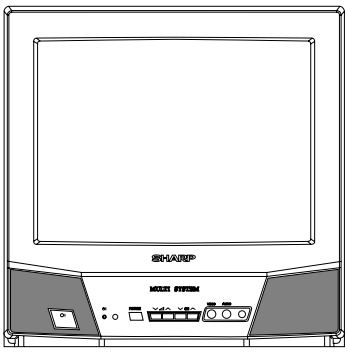
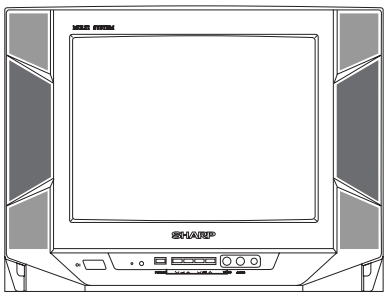


(14A1,14AG1)



(14A2,14AG2)

COLOUR TELEVISION

Chassis No. UA-1

MODELS

14A1-W/A/S
14AG1-M/S
14A2-A/S
14AG2-M/S

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

FEATURE

- Multi 18 systems
- Full Auto Channel Preset and Auto Channel Skip
- 100-CH Program Memory
- CATV(Hyper Band) Ready
  <Used Frequency Synthesizer Tuner>
- AVL(Sound Keeper) Function
- Black Stretch Circuit
- On Timer/Sleep Timer/Reminder Timer
- Blue Back Noise Mute
- Front AV-In & Rear AV-In/Out Terminals
- Colour Comb Filter(NTSC only)
- High Contrast Picture
- Hotel Mode
- Front Headphone(14A1-W/14A1-A/14A2-A only)
- Arabic/Chinese/English/French/Malay/Russian 6 Languages OSD

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis. To prevent electric shock, do not remove cover. No user – serviceable parts inside. Refer servicing to qualified service personnel.

SHARP CORPORATION

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SPECIFICATIONS

Convergence ..... Self Convergence System
Focus ..... Quadra-Potential Electrostatic

Sweep Deflection ..... Magnetic
Intermediate Frequencies
- Picture IF Carrier 38.9MHz
- Sound IF Carrier Frequency
  - 6.5MHz 32.4MHz
  - 6.0MHz 32.9MHz
  - 5.5MHz 33.4MHz
- Colour Sub-Carrier Frequency 34.47MHz

Power Input ..... 100 ~ 240V AC 50/60 Hz
Power Consumption
- 14A1 ..... 65W
- 14A2 ..... 68W

Audio Power Output Rating
- 14A1 ..... 3.0W(at Max.)
- 14A2 ..... 5.0W(at Max.)

Speaker
- Size
  - 14A1 ..... 5 x 9 cm (1pc)
  - 14A2 ..... 5 x 9 cm (2 pcs)
- Voice Coil Impedance
  - 14A1 ..... 16 ohms at 400 Hz
  - 14A2 ..... 16 ohms at 400 Hz

Aerial Input Impedance
- VHF/UHF ..... 75 ohms Unbalanced

Receiving System ..... CCIR SECAM/PAL B, G,D,K,I

Tuner Ranges
- VHF-Channels ..... E2(48.25MHz) thru E12(224.25MHz)
  C1(49.75MHz) thru C12(216.25 MHz)
  S1(105.25MHz) thru S36(423.25HMz)
- UHF-Channels ..... E21(471.25MHz) thru E69(855.25MHz)
  C13(471.25MHz) thru C57(863.25MHz)
  S37(431.25MHz) thru S41(463.25MHz)

Dimensions
- 14A1 ..... Width: 357.0mm
  Height: 361.0mm
  Depth: 368.7mm
  Weight(approx): 9.2 kg
- 14A2 ..... Width: 446.0mm
  Height: 333.0mm
  Depth: 365.0mm
  Weight(approx): 9.4 kg

Cabinet material ..... All Plastics

Specifications are subject to change without prior notice.

IMPORTANT SERVICE NOTES

Maintenance and repair of this receiver should be done by qualified service personnel only.

SERVICE OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by Connecting a 10K ohm Resistor in series with an insulated wire(such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord should be disconnected from AC outlet.)

1. **Picture tube in this receiver employs integral implosion protection.**
2. **Replace with tube of the same type number for continued safety.**
3. **Do not lift picture tube by the neck.**
4. **Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.**

X-RAY

This receiver is designed so that any X-Ray radiation is kept to an absolute Minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the followin precautions should be observed:

1. **14A1/2 : When repairing the circuit, be sure not to increase the high voltage to more than 23.5kV(at beam 0 μA) for the set.**
2. **14A1/2 : To keep the set in a normal opeartion , be sure to make it function on 22.0kV ±1.5kV(at beam 800 μA) in the case of the set. The set has been factory - Adjusted to the above-mentioned high voltage.**
   *** If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.**
3. **Do not substitute a picture tube with unauthorizerd types and/or brands which may cause excess X-ray radiation.**

BEFORE RETURNING THE RECEIVER

Before returning the receiver to the user, perform the following safety Checks.

1. **Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.**
2. **Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor- capacity networks, mechanical insulators etc.**

ADJUSTMENT PRECAUTIONS

This model's setting are adjusted in two different ways: through the I^2C bus control and in the conventional analog manner. The adjustments via the I^2C bus control include preset-only items and variable data.

1. Setting the service mode by the microprocessor.

①. Short JA 122 & JA 124 for 1 second and release to switch to the service mode position, and the microprocessor is in input mode. (Adjustment through the I2C bus control). (Use JWS Key to set as well).

②. Press the CH DOWN / UP key on the remote controller to get ready to select the mode one by one.

③. Press the CH DOWN / UP key on the remote controller to select the modes reversibly one by one.

④. Using the VOLUME UP/ DOWN key on the remote controller, the data can be modified.

⑤. Short JA 122 & JA 124 for 1 second and release to switch to the normal mode (OFF) position, and the microprocessor is in out of the service mode.

2. Factory Presetting.

①. Short JA 122 & JA 124 for 1 second and release to switch to the service mode position and turn on the main power switch.Initial values are automatically preset, only when a new EEPROM is used (Judge with the first 4 bytes).

②. The initial data are preset as listed in page 8, 9, & 10.

③. Make sure the data need modify or not (Initial data).

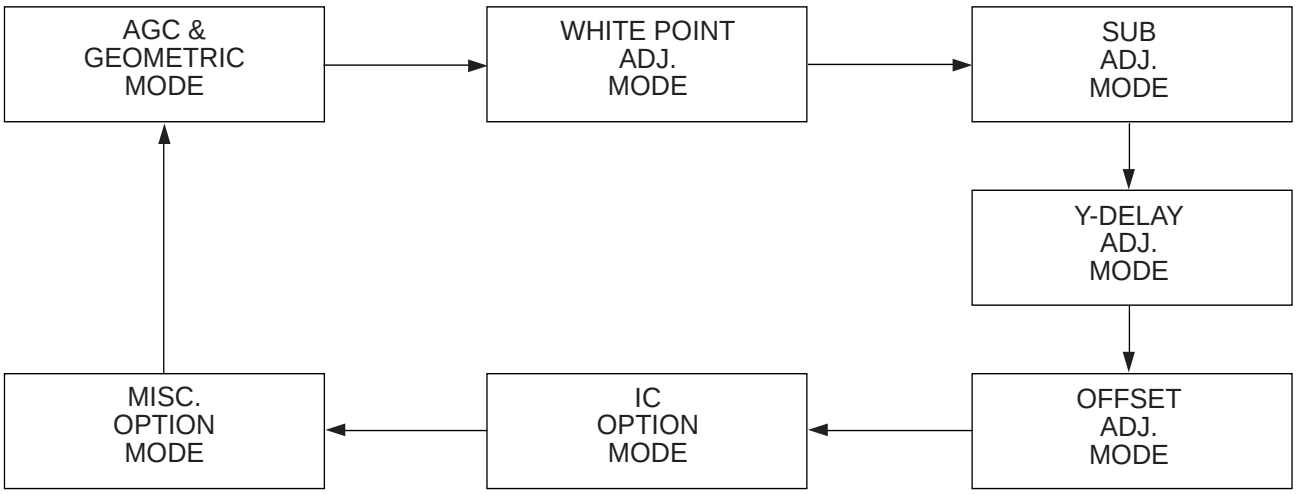
Note: Once the chassis has been assembly together and ready to be POWER ON for the FIRST TIME, make sure to short JA122 & JA124 to switch to the service mode position first and then turn on the main power switch (See 2-(1) above).

Precaution: If haven't done this initiation, it may possibly generate excessive Beam current.

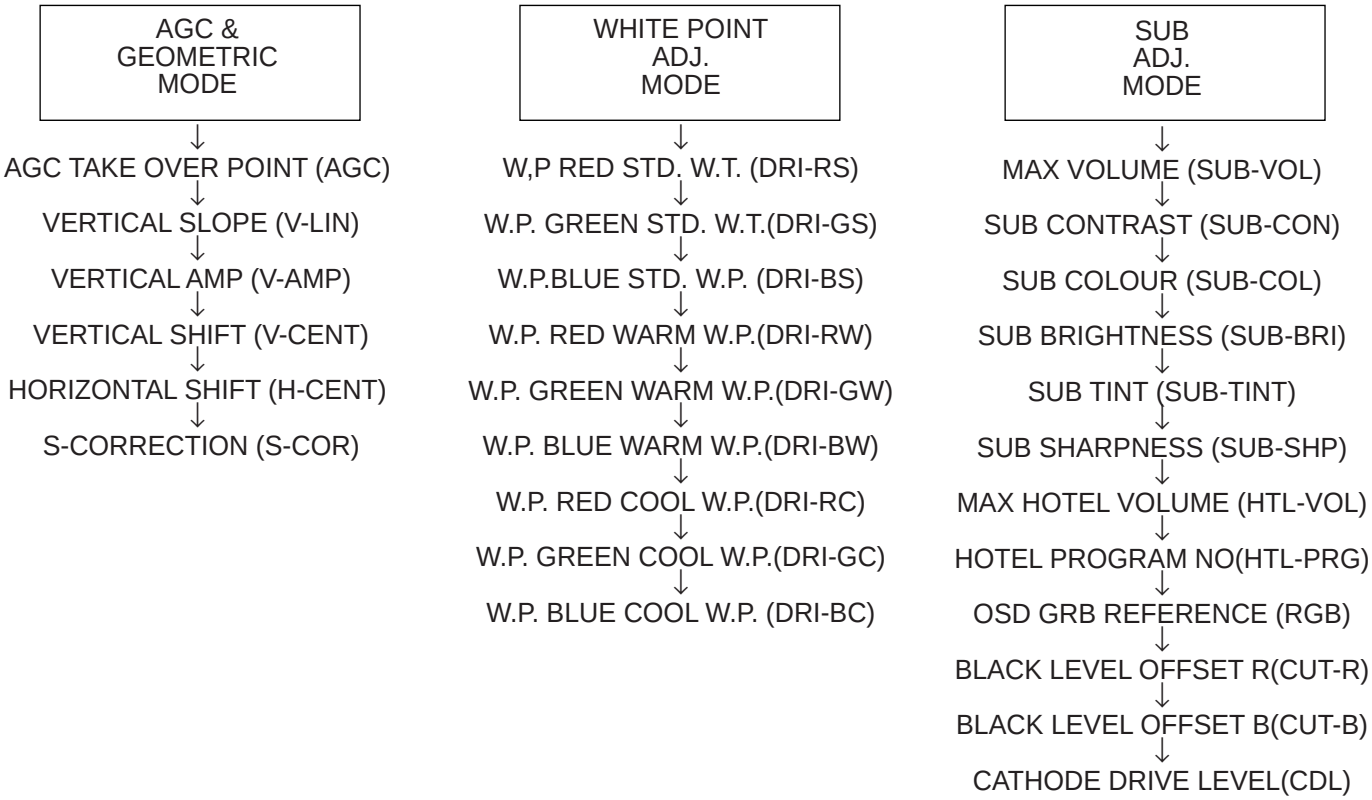
3. For reference please check with memory map (UA1 Series type RH-IX3311CE Attachment)

■ SERVICE MODE

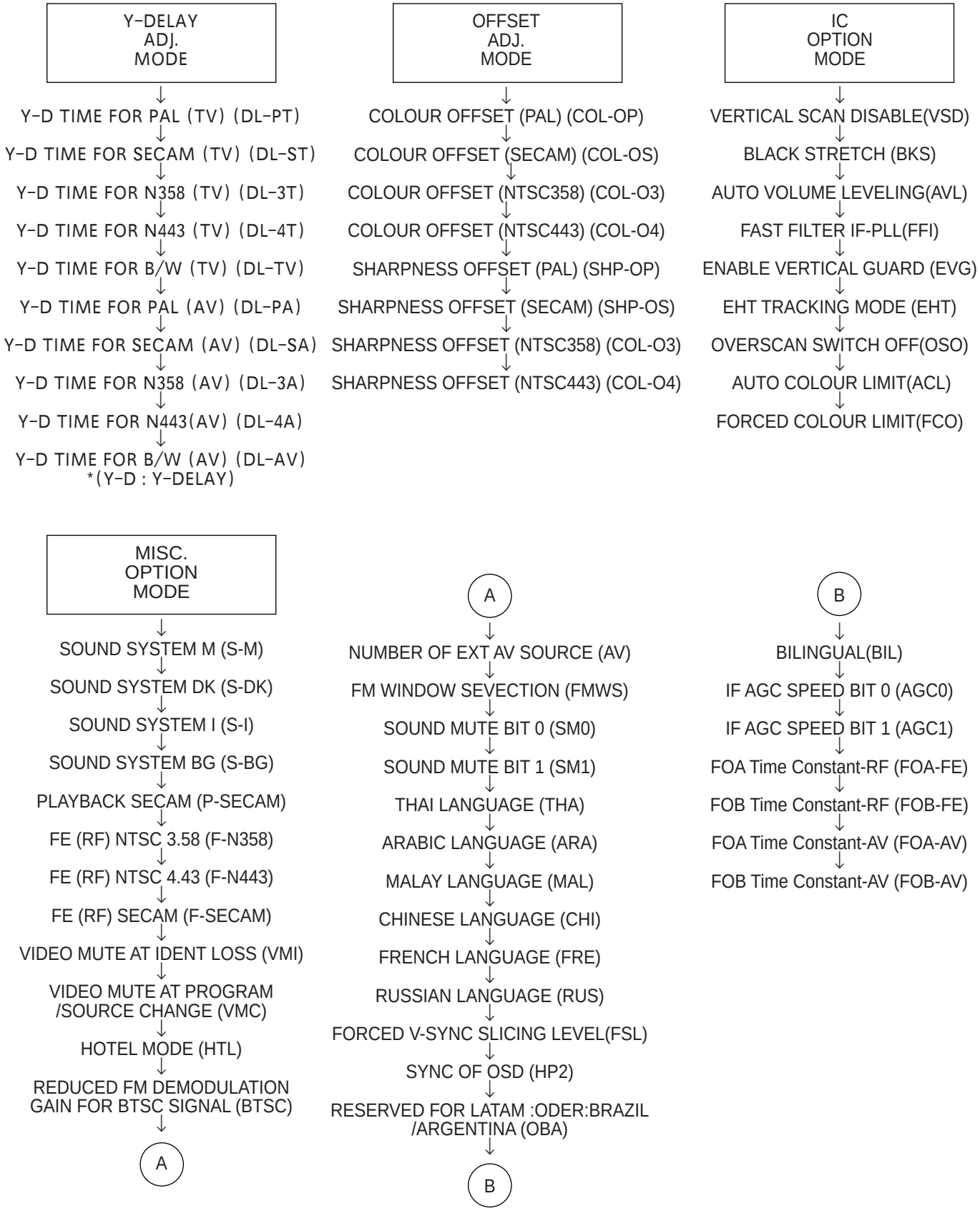
(1) In the Service Mode, Key is used to select the mode in the following order.



FORWARD : CH DOWN KEY
REVERSE : CH UP KEY



FORWARD : CH DOWN KEY
REVERSE : CH UP KEY
* ( ) means OSD display.


Y-DELAY ADJ. MODE
Y-D TIME FOR PAL (TV) (DL-PT)
Y-D TIME FOR SECAM (TV) (DL-ST)
Y-D TIME FOR N358 (TV) (DL-3T)
Y-D TIME FOR N443 (TV) (DL-4T)
Y-D TIME FOR B/W (TV) (DL-TV)
Y-D TIME FOR PAL (AV) (DL-PA)
Y-D TIME FOR SECAM (AV) (DL-SA)
Y-D TIME FOR N358 (AV) (DL-3A)
Y-D TIME FOR N443(AV) (DL-4A)
Y-D TIME FOR B/W (AV) (DL-AV)
*(Y-D : Y-DELAY)
OFFSET ADJ. MODE
COLOUR OFFSET (PAL) (COL-OP)
COLOUR OFFSET (SECAM) (COL-OS)
COLOUR OFFSET (NTSC358) (COL-O3)
COLOUR OFFSET (NTSC443) (COL-O4)
SHARPNESS OFFSET (PAL) (SHP-OP)
SHARPNESS OFFSET (SECAM) (SHP-OS)
SHARPNESS OFFSET (NTSC358) (COL-O3)
SHARPNESS OFFSET (NTSC443) (COL-O4)
IC OPTION MODE
VERTICAL SCAN DISABLE(VSD)
BLACK STRETCH (BKS)
AUTO VOLUME LEVELING(AVL)
FAST FILTER IF-PLL(FFI)
ENABLE VERTICAL GUARD (EVG)
EHT TRACKING MODE (EHT)
OVERSCAN SWITCH OFF(OSO)
AUTO COLOUR LIMIT(ACL)
FORCED COLOUR LIMIT(FCO)
MISC. OPTION MODE
SOUND SYSTEM M (S-M)
SOUND SYSTEM DK (S-DK)
SOUND SYSTEM I (S-I)
SOUND SYSTEM BG (S-BG)
PLAYBACK SECAM (P-SECAM)
FE (RF) NTSC 3.58 (F-N358)
FE (RF) NTSC 4.43 (F-N443)
FE (RF) SECAM (F-SECAM)
VIDEO MUTE AT IDENT LOSS (VMI)
VIDEO MUTE AT PROGRAM /SOURCE CHANGE (VMC)
HOTEL MODE (HTL)
REDUCED FM DEMODULATION GAIN FOR BTSC SIGNAL (BTSC)
A
A
NUMBER OF EXT AV SOURCE (AV)
FM WINDOW SEVECTION (FMWS)
SOUND MUTE BIT 0 (SM0)
SOUND MUTE BIT 1 (SM1)
THAI LANGUAGE (THA)
ARABIC LANGUAGE (ARA)
MALAY LANGUAGE (MAL)
CHINESE LANGUAGE (CHI)
FRENCH LANGUAGE (FRE)
RUSSIAN LANGUAGE (RUS)
FORCED V-SYNC SLICING LEVEL(FSL)
SYNC OF OSD (HP2)
RESERVED FOR LATAM :ODER:BRAZIL /ARGENTINA (OBA)
B
B
BILINGUAL(BIL)
IF AGC SPEED BIT 0 (AGC0)
IF AGC SPEED BIT 1 (AGC1)
FOA Time Constant-RF (FOA-FE)
FOB Time Constant-RF (FOB-FE)
FOA Time Constant-AV (FOA-AV)
FOB Time Constant-AV (FOB-AV)

USER DATA IN SERVICE MODE

* While SERVICE mode ON, EEPROM DATA will switch to the service data.
  Also, once SERVICE mode OFF, EEPROM will switch back to previous USER DATA.
* In the service mode, the user data establish as below,

MODE	USER DATA
CONTRAST	MIN (1/60)
COLOUR	MIN (1/60)
BRIGHTNESS	MIN (1/60)
TINT	MIN (1/60)
SHARPNESS	MIN (1/60)
WHITE TEMP	STANDARD
S-VOLUME	MIN (1/60)
BLUE BACK	OFF
C SYSTEM	AUTO
S SYSTEM	*1

*1 : For each CH, before changing service mode setting.

The flow of Mode lists as following,

* Direct Key-in Step1 Mode

RC COMMAND	SERVICE-ITEM
FUNCTION	**AGC**
CONTRAST DOWN	**V-LIN**
COLOUR DOWN	**V-AMP**
BRIGHTNESS DOWN	**V-CENT**
TINT DOWN	**H-CENT**
SHARPNESS DOWN	**EW / /**
SYSTEM	**HB**
BLUEBACK	**S-COR**
TIMER	**SUB-VOL**
CONTRAST UP	**SUB-CON**
COLOUR UP	**SUB-COL**
BRIGHTNESS UP	**SUB-BRI**
TINT UP TINT	**SUB TINT**
SHARPNESS UP	**SUB-SHP**

AFTER SHORT JA 122 & JA 124 ,AND TURN ON THE MAIN POWER SWITCH,READ DATA FROM EEPROM ADDRESS 00H ~ 03H,AND COMPARE TO THE LIST BELOW, IF DIFFERENT, INITIALIZE THE EEPROM.

Address	:	Data	Address	:	Data
00H	:	55H	02H	:	43H
01H	:	4FH	03H	:	A1H

EEPROM ITEMS	OSD	DATA LENGTH	INITIAL DATA	FIX/ADJ	REMARK
AGC TAKE OVER POINT	AGC	0~63	14	ADJ	
VERTICAL SLOPE	V-LIN	0~63	32	ADJ	
VERTICAL AMPLITUDE	V-AMP	0~63	32	ADJ	
VERTICAL SHIFT	V-CENT	0~63	32	ADJ	
HORIZONTAL SHIFT	H-CENT	0~63	32	ADJ	
S-CORRECTION	S-COR	0~63	0	FIX	
WHITE POINT RED STD WHITE TEMP	DRI-RS	0~63	32	FIX	
WHITE POINT GREEN STD WHITE TEMP	DRI-GS	0~63	32	ADJ	
WHITE POINT BLUE STD WHITE TEMP	DRI-BS	0~63	32	ADJ	
WHITE POINT RED WARM WHITE TEMP	DRI-RW	0~63	32	FIX	
WHITE POINT GREEN WARM WHITE TEMP	DRI-GW	0~63	32	FIX	(DRI-GS)-7 DATA
WHITE POINT BLUE WARM WHITE TEMP	DRI-BW	0~63	32	FIX	(DRI-BS)-7 DATA
WHITE POINT RED COOL WHITE TEMP	DRI-RC	0~63	25	FIX	(DRI-BS)-7 DATA
WHITE POINT GREEN COOL WHITE TEMP	DRI-GC	0~63	32	FIX	(DRI-GS)-7 DATA
WHITE POINT BLUE COOL WHITE TEMP	DRI-BC	0~63	32	FIX	(DRI-BS)DATA
MAX VOLUME	SUB-VOL	0~63	63	FIX	
SUB CONTRAST	SUB-CON	0~63	63 (50 *3)	FIX	
SUB COLOUR	SUB-COL	0~63	32	ADJ	
SUB BRIGHTNESS	SUB-BRI	0~63	32	ADJ	
SUB TINT	SUB-TINT	0~63	32	ADJ	
SUB SHARPNESS	SUB-SHP	0~63	32	ADJ	
MAX HOTEL VOLUME	HTL-VOL	0~63	32	ADJ	
HOTEL PROGRAM NUMBER	HTL-PRG	0~99 OR>99FOR NONE	255	FIX	
OSD GRB REFERENCE	RGB	0~15	15	FIX	
BLACK LEVEL OFF-SET R	CUT-R	0~15	8	FIX	
BLACK LEVEL OFF-SET B	CUT-B	0~15	8	FIX	
CATHODE DRIVE LEVEL	CDL	0~15	0	FIX	
Y-DELAY TIME FOR PAL(TV) [YD]	DL-PT	0~15	12	FIX	
Y-DELAY TIME FOR SECAM(TV) [YD]	DL-ST	0~15	15	FIX	
Y-DELAY TIME FOR N358 (TV) [YD]	DL-3T	0~15	12	FIX	
Y-DELAY TIME FOR N443 (TV) [YD]	DL-4T	0~15	12	FIX	
Y-DELAY TIME FOR B/W (TV) [YD]	DL-TV	0~15	12	FIX	
Y-DELAY TIME FOR PAL (AV) [YD]	DL-PA	0~15	12	FIX	
Y-DELAY TIME FOR SECAM (AV) [YD]	DL-SA	0~15	15	FIX	
Y-DELAY TIME FOR N358 (AV) [YD]	DL-3A	0~15	12	FIX	
Y-DELAY TIME FOR N443 (AV) [YD]	DL-4A	0~15	12	FIX	
Y-DELAY TIME FOR B/W (AV) [YD]	DL-AV	0~15	12	FIX	
COLOUR OFFSET (PAL)	COL-OP	0~15	8	FIX	
COLOUR OFFSET (SECAM)	COL-OS	0~15	8	FIX	
COLOUR OFFSET (NTSC358)	COL-03	0~15	8	FIX	AFTER SUB COL "4"
COLOUR OFFSET (NTSC443)	COL-O4	0~15	8	FIX	AFTER SUB COL "4"
SHARPNESS OFFSET (PAL)	SHP-OP	0~15	8	FIX	
SHARPNESS OFFSET (SECAM)	SHP-OS	0~15	8	FIX	AFTER SUB COL "4"
SHARPNESS OFFSET (NTSC358)	SHP-O3	0~15	12	FIX	
SHARPNESS OFFSET (NTSC443)	SHP-O4	0~15	8	FIX	

EEPROM ITEMS	OSD	DATA LENGTH	INITIAL DATA	FIX/ADJ	REMARK
VERTICAL SCAN DISABLE	VSD	0(DISABLE)/1(ENABLE)	0	FIX	
BLACK STRETCH	BKS	0(DISABLE)/1(ENABLE)	1	FIX	
AUTOMATIC VOLUME LEVELING	AVL	0(DISABLE)/1(ENABLE)	1	FIX	
FAST FILTER IF-PLL	FFI	0(DISABLE)/1(ENABLE)	0	FIX	
ENABLE VERTICAL GUARD (RGB BLANKING)	EVG	0(DISABLE)/1(ENABLE)	1	FIX	ONLY BLK
EHT TRACKING MODE (HCO)	EHT	0(DISABLE)/1(ENABLE)	1	FIX	
OVERSCAN SWITCH OFF	OSO	0(DISABLE)/1(ENABLE)	0	FIX	
AUTO COLOUR LIMIT	ACL	0(DISABLE)/1(ENABLE)	0	FIX	
FORCED COLOUR LIMIT	FCO	0(DISABLE)/1(ENABLE)	0	FIX	
SOUND SYSTEM M	S-M	0(DISABLE)/1(ENABLE)	0	*1	
SOUND SYSTEM DK	S-DK	0(DISABLE)/1(ENABLE)	0	*1	
SOUND SYSTEM I	S-I	0(DISABLE)/1(ENABLE)	0	*1	
SOUND SYSTEM BG	S-BG	0(DISABLE)/1(ENABLE)	1	*1	
PLAYBACK SECAM	P-SECAM	0(DISABLE)/1(ENABLE)	1	*1	
FE (RF) NTSC 3.58	F-N358	0(DISABLE)/1(ENABLE)	0	*1	
FE (RF) NTSC 4.43	F-N443	0(DISABLE)/1(ENABLE)	1	*1	
FE (RF) SECAM	F-SECAM	0(DISABLE)/1(ENABLE)	1	*1	
VIDEO MUTE AT IDENT LOSS	VMI	0(DISABLE)/1(ENABLE)	1	FIX	
VIDEO MUTE AT PROGRAM/SOURCE CHANGE	VMC	0(DISABLE)/1(ENABLE)	1	FIX	
HOTEL MODE	HTL	0(DISABLE)/1(ENABLE)	0	FIX	
REDUCED FM DEMODULATOR GAIN FOR BTSC SIGNAL	BTSC	0(DISABLE)/1(ENABLE)	0	FIX	
NUMBER OF EXTERNAL AV SOURCE	AV	0 FOR1 AV/1 FOR 2AV	1	FIX	
FM WINDOW SELECTION	FMWS	0(DISABLE)/1(ENABLE)	0	FIX	
SOUND MUTE BIT 0	SM0	0(DISABLE)/1(ENABLE)	1	FIX	
SOUND MUTE BIT 1	SM1	0(DISABLE)/1(ENABLE)	0	FIX	
THAI LANGUAGE	THA	0(DISABLE)/1(ENABLE)	0	*2	
ARABIC LANGUAGE	ARA	0(DISABLE)/1(ENABLE)	0	*2	
MALAY LANGUAGE	MAL	0(DISABLE)/1(ENABLE)	0	*2	
CHINESE LANGUAGE	CHI	0(DISABLE)/1(ENABLE)	0	*2	
FRENCH LANGUAGE	FRE	0(DISABLE)/1(ENABLE)	0	*2	
RUSSIAN LANGUAGE	RUS	0(DISABLE)/1(ENABLE)	0	*2	
FORCED V-SYNC SLICING LEVEL	FSL	0(DISABLE)/1(ENABLE)	0	FIX	
SYNC OF OSD	HP2	0(DISABLE)/1(ENABLE)	0	FIX	
RESERVED FOR LATAM:ODER:BRAZIL/ARGENTINA	OBA	0(BRAZIL)/1(ARGENTINA)	0	FIX	
BILINGUAL	BIL	0(DISABLE)/1(ENABLE)	0	FIX	
IF AGC SPEED BIT 0	AGC0	0(DISABLE)/1(ENABLE)	1	FIX	
IF AGC SPEED BIT 1	AGC1	0(DISABLE)/1(ENABLE)	0	FIX	
PHI-1 TIME CONSTANT (RF)	FOA-FE	0(DISABLE)/1(ENABLE)	0	FIX	
PHI-1 TIME CONSTANT (RF)	FOB-FE	0(DISABLE)/1(ENABLE)	0	FIX	
PHI-1 TIME CONSTANT (OFF AIR)	FOA-AV	0(DISABLE)/1(ENABLE)	1	FIX	
PHI-1 TIME CONSTANT (OFF AIR)	FOB-AV	0(DISABLE)/1(ENABLE)	1	FIX	

NOTE :

FIXED DATA,PLEASE DO NOT CHANGE WITHOUT SPECIFIC INSTRUCTION."

*1: PLEASE REFER TO PAGE 11.

*2: PLEASE REFER TO PAGE 11.

*3: SERVICE MODE "SUB CONTRAST" INITIAL DATA=50
14A1-W ONLY

INITIAL SETTING

(1). In service mode, After execute select POS 1, store the following tuning data in EEPROM.

MCL1			MCL2		
CH-NO	Fv (MHz)	SOUND SYS	CH-NO	Fv (MHz)	SOUND SYS
0			0		
1	48.25	B/G	1	46.25	B/G
2	62.25	B/G	2	64.25	B/G
3	77.25	D/K	3	86.25	B/G
4	175.25	B/G	4	95.25	B/G
5	182.25	B/G	5	138.25	B/G
6	183.25	D/K	6	175.25	B/G
7	191.25	D/K	7	182.25	B/G
8	196.25	B/G	8	189.25	B/G
9	210.25	B/G	9	196.25	B/G
10	224.25	B/G	10	209.25	B/G
11	471.25	B/G	11	216.25	B/G
12	487.25	I	12		
13	503.25	B/G	13		
14	575.25	B/G	14		
15	599.25	B/G	15		
16	621.25	M	16		
17	639.25	D/K	17		
18	703.25	B/G	18	527.25	B/G
19	735.25	I	19	847.25	B/G
20	767.25	B/G	20	48.25	B/G
21	815.25	B/G	21	175.25	B/G
22	855.25	I	22	210.25	B/G
23	855.25	B/G	23	224.25	B/G
24	55.25	M	24	575.25	B/G
25	83.25	M	25	599.25	B/G
26	183.25	M	26	767.25	B/G
27	193.25	M	27	183.25	M
28	217.25	M	28	193.25	M
29	471.25	M	29	112.25	B/G
30	477.25	M	30	168.25	B/G
31	693.25	M	31		
32	885.25	M	32	294.25	B/G
33	112.25	B/G	33	463.25	B/G
34	168.25	B/G	34	174.95	B/G
35			35	175.55	B/G
36	294.25	B/G	36		
37	463.25	B/G	37		
38			38		
39	647.25	B/G	39		
40	663.25	B/G	40		
41	679.25	B/G	41		
42	174.95	B/G	42		
43	175.55	B/G	43		

SHIPPING SETTING & CHECKING

(1) The following default data has been factory-set for the E^2PROM.

ITEMS	DATA SETTING
LAST PROGRAM/CHANNEL	1
FLASHBACK PROGARM/CH	1
DIGIT	1
C-SYSTEM	AUTO
S-SYSTEM	*1
SKIP	OFF
AFC	ON
VOLUME	1
CONTRAST	60 (MAX)
COLOUR	0 (CENTER)
BRIGHTNESS	0 (CENTER)
TINT	0 (CENTER)
SHARPNESS	0 (CENTER)
WHITE TEMP	STANDARD
REMINDER TIMER	In-active, "--:--"
ON TIMER	In-active, "--:--"
OFF TIMER	In-active, "--:--"
LAST POWER	POWER-ON
LANGUAGE	*1
BLUE BACK MUTE	OFF
HOTEL MODE	OFF

*1: Please refer defaults for LANGUAGE and SOUND SYSTEM per MODEL as follows,

MODEL	LANGAUGE	SOUND SYSTEM
1	CHINESE	D/K
2	CHINESE	I
3	ENGLISH	B/G
4	ARABIC	B/G
5	RUSSIAN	D/K
6	MALAY	B/G
7	FRENCH	D/K

FACTORY SETTINGS BY MODELS (Reference: Geomagnetism Adjustment)

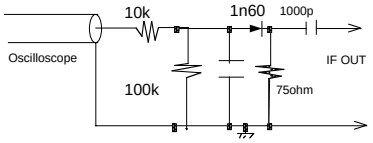
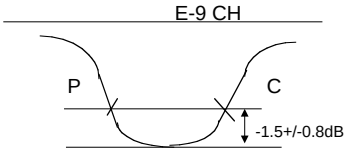
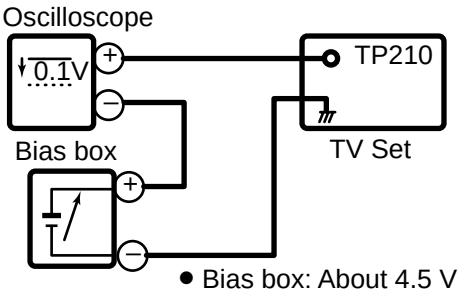
MODEL	Geomagnetism (H,V) nT	Background	Lang.	S-SYS	Lang. QTY
A	"30,000" "20,000"	12300K	CHINESE	D/K	*(1)
B	"30,000" "20,000"	12300K	CHINESE	I	*(1)
C (SINGAPORE)	"-10,000" "40,000"	12300K	ENGLISH	B/G	*(1)
E	"30,000" "20,000"	12300K	ARABIC	B/G	*(2)
F	"30,000" "20,000"	12300K	ARABIC	B/G	*(3)
F*	"-10,000" "40,000"	12300K	ENGLISH	B/G	*(3)
G	"30,000" "20,000"	12300K	ARABIC	B/G	*(3)
*G (AFRICA)	"-10,000" "40,000"	12300K	ENGLISH	B/G	*(3)
J	"45,000" "20,000"	7500K	RUSSIAN	D/K	*(4)

*NOTE FOR OSD TYPE

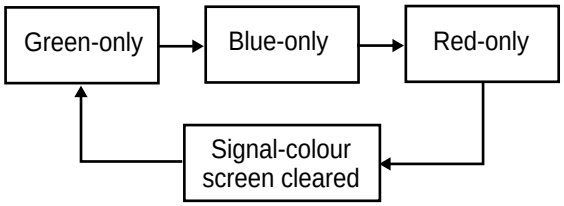
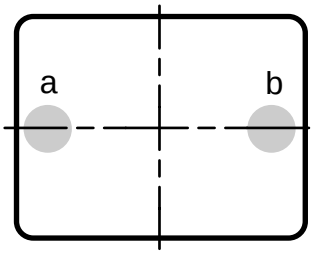
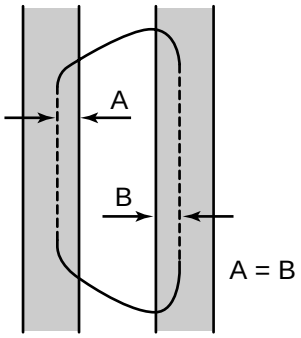
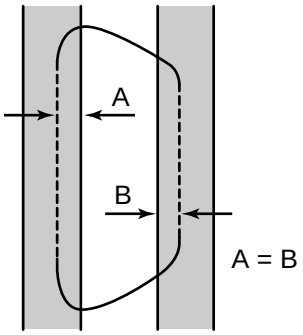
(1): ENGLISH/CHINESE/MALAY
(2): ENGLISH/FRENCH/ARABIC/RUSSIAN
(3): ENGLISH/CHINESE/FRENCH/ARABIC/MALAY
(4): ENGLISH/RUSSIAN
(5): ENGLISH/CHINESE/FRENCH/ARABIC/MALAY/RUSSIAN

*OSD LANG MUST BE SET IN SERVICE MODE,BUT IT'S BETTER TO WRITE IN EEPROM.

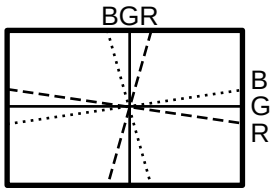
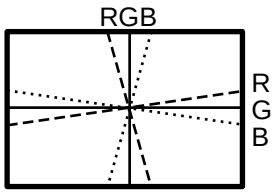
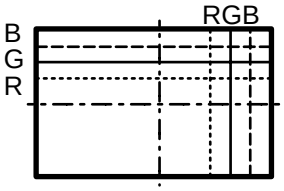
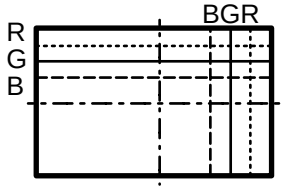
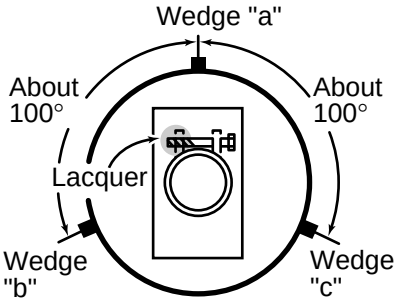
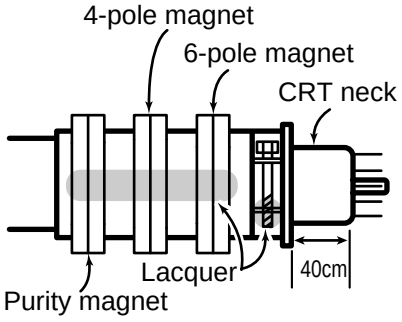
PIF ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Tuner IFT (PRESET)**	1. Get the tuner ready to receive the CH. E - 9 signal,but with no signal input. Adjust the PLL data. 2. Connect the sweep generator's output cable to the tuner antenna. (RF SWEEP) 3. Adjust the sweep generator's to 80dBuV. 4. Connect the response lead (use LOW IMPEDANCE probe with wave detector ; see Fig.1) to the tuner's IF output terminal. (This terminal must have the probe alone connected). 5. Set the RF AGC to 0 - 6 V with no saturation with the waveform. 6. Adjust the tuner IF coil to obtain the waveform as shown in Fig. 2. Note: Be sure to keep the tuner cover in position during this adjustment.	 Fig.1  Fig.2
2	**RF-AGC TAKE OVER POINT ADJUSTMENT (I^2C BUS CONTROL)**	1. Receive "PAL COLOUR BAR" signal. ● Signal Strength: 54 ± 1 dBμV (75 ohm open) 2. Connect the oscilloscope to TP210 (Tuner's AGC Terminal) as shown in Fig. 3.  ● Bias box: About 4.5 V Fig. 3 3. Call "AG" mode in service mode. Adjust the "AG" bus data to obtain the Tuner output pin drop 0.1V below maximum voltage. 4. Change the antenna input signal to 63~67dBμV, and make sure there is no noise. 5. Turn up the input signal to 90~95 dBμV to be sure that there is no cross modulation beat.	**Note: For the 50 ohm signal strength gauge, when not using 50/75 impedance adapter, signal strength is 52±1dBμV(75 ohm open), instead of 54±1dBμV (75 ohm open).** **Precaution: The loss of using impedance adapter**

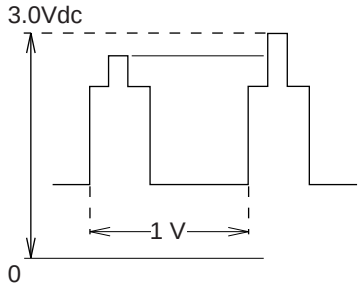
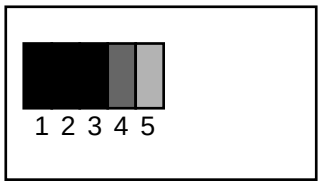
PURITY ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**PURITY ADJ.**	1. Receive the GREEN-ONLY signal. Adjust the beam current to about 500 μA. 2. Degauss the CRT enough with the degausing coil. **Note: Follow the Job Instruction Sheet to adjust the magnetic field.** **Vertical Bv : +0.030 mT (0.30 gauss)** **Horizontal Bh: +0.020 mT (0.20 gauss)** **(See page 12.)** 3. Maintain the purity magnet at the zero magnetic field and keep the static convergence roughly adjusted. 4. Observe the points a, b as shown in Fig. 4-1 through the microscope. Adjust the landing to the rank A requirements. 5. Orient the raster rotation to 0 eastward. 6. Tighten up the deflection coil screws. ● Tightening torque: 108 ± 20 N (11 ± 2 kgf) 7. Make sure the CRT corners landing meet the A rank requirements. If not, stick the magnet sheet to correct it. **Note: This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 500 μA.** **Note: Set the service mode by JA122 & JA124 (short) then press factory process R/C RGB key to change to RGB mono colour mode.** * For the following colours press R/C RGB key to change. 	 Fig. 4-1  Fig. 4-2 Rank "A" (on the right of the CRT)  Fig. 4-3 Rank "A" (on the left of the CRT) * Press R/C RGB key for 1 second in NORMAL MODE, the colour will change to RGB mono colour mode. The TEXT Key "R. G. Cy" Key can be directly use to change to other colours screen.

CONVERGENCE ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**CONVERGENC ADJ. (To be done after the purity adjustment.**	1. Receive the "Crosshatch Pattern" signal. 2. Using the remote controller, call NORMAL mode. **STATIC CONVERGENCE** 1. Turn the 4-pole magnet to a proper opening angle in order to superpose the blue and red colours. 2. Turn the 6-pole magnet to a proper opening angle in order to superpose the green colour over the blue and red colours. **DYNAMIC CONVERGENCE** 1. Adjust the convergence on the fringes of the screen in the following steps. a) Fig. 5-1: Drive the wedge at point "a" and swing the deflection coil upward. b) Fig. 5-2: Drive the wedge at points "b" and "c" and swing the deflection coil downward. c) Fig. 5-3: Drive the "c" wedge deeper and swing the deflection coil rightward. d) Fig. 5-4: Drive the "b" wedge deeper and swing the deflection coil leftward. 2. Fix all the wedges on the CRT and apply glass tape over them. 3. Apply lacquer to the deflection yoke lock screw, magnet unit (purity, 4-pole, 6-pole magnets) and magnet unit lock screw. Finally received the Red-only and Blue-only signals to make sure there is no other colours on the screen.	 Fig. 5-1  Fig. 5-2  Fig. 5-3  Fig. 5-4  

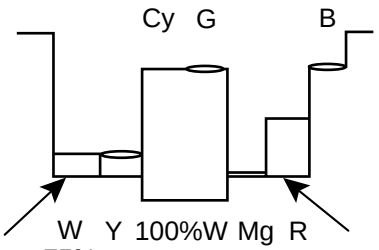
CRT CUT-OFF, BACKGROUND AND SUB-CONTRAST ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**CRT CUTOFF ADJUSTMENT (I²C BUS CONTROL)**	1. Switch TV to VIDEO mode,BLUE BACK OFF, with NO VIDEO signal. 2. Press R/C to set Picture Normal condition. 3. Connect the oscilloscope to Red OUT from IC801.(TP851) Range : 1 V/Div (DC) Sweep : 5 msec/Div 4. Adjust SCREEN VR ,so that the tip of signal reach 3.0 Vdc + 0.1 Vdc.	
2	**SUB-BRIGHT-NESS ADJUSMENT (I²C BUS CONTROL)**	1. Call " SUB-BRI" in service mode. (Receive Cross-hatch pattern with 5 black level windows) 2. Adjust the " SUB BRIGHT " bus data in order that the line 1, 2 and 3 have the same darkness wherelse line 4 is slightly brighter than line 1, 2 and 3 and finally line 5 will be the brighter than line 4.	 1, 2, 3 are in same black level.
3	**WHITE BAL-ANCE SERV-ICE MODE ADJ. (I2C BUS CONTROL)**	1. Receive the "Monoscope Pattern" signal. 2. Press R/C to set Picture NORMAL condition. 3. Connect the DC miliammeter between TP602 (-) and TP603 (+). 4. Check Beam current should be around 800 μA. 5. Set it to service mode and adjust the " WPG" (WhitePoint-G), "WPB" (White Point-B) data to have a colour temperature of 12,300°K or 7500°K (white). * Note . 6. When changed back to non- service mode, adjust the Contrast & Brightness control to have a beam current of 200μA. If the colour temperature is not at 12300°K or 7500°K go back to No. 1. **Note: This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 500μA).** * ADJUST DRI-GC/GW, DR-BC/BW AS FOLLOW-ING DATA, AFTER FIHISHING DRI-GS AND DRI-BS. DRI-GC/GW DATA: "DRI-GS"-7 DATA DRI-RC:27 DRI-BW DATA: "DRI-BS" -7 DATA DRI-BC=DRI-BS	Refer to Page 12. * 7500°K X : 0.300 Y : 0.310 * 12300°K X : 0.272 Y : 0.275 (MINOLTA COLOUR ANALYZER CA-100) *Note: Above Data can be UP/ DOWN by Volume key.
4	**Maximum beam check**	1. Receive the "Monoscope Pattern" signal. 2. Press R/C to set Picture NORMAL condition. 3. Connect the DC miliammeter between TP603 (+) and TP602 (–). (Full Scale: 3 mA Range) 4. Beam current must be within 800 ± 100 μA.	

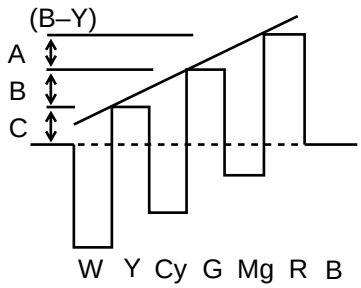
HORIZONTAL AND VERTICAL DEFLECTION LOOP ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**V-LINEARITY (I^2C BUS CONTROL)**	1. Receive Monoscope Pattern Signal. 2. Call the "V-LIN" mode. 3. Increase or decrease "V-LIN" by Volume key till the horizontal line in the center of monoscope is just at the position where the blanking starts.	
2	**V-CENTER (I^2C BUS CONTROL)**	1. Call the "V-CENT" mode. 2. Increase or decrease "V-CENT" by Volume key till the picture is centered.	
3	**V - AMP (I^2C BUS CONTROL)**	1. Call the "V-AMP" mode. 2. Increase or decrease "V - AMP" by Volume key to set overscan of 9.5% typical. Adjustment Spec 9.5% range +1% -0%.	
4	**S-CORRECTION (I^2C BUS CONTROL)**	**FIXED DATA, NO NEED TO ADJUST.**	
5	**H - CENTER**	1. Call the "H-CENT" mode. 2. Increase or decrease "H-CENT" by Volume key to center the picture horizontal.	
6	**Focus adjustment**	1. Receive the "Monoscope Pattern" signal. 2. Press R/C to set Picture NORMAL condition. 3. Adjust the focus control to get the best focus.	

PAL CHROMA ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**SUB COLOUR (I^2C BUS CONTROL)**	1. Receive the "PAL Colour Bar" signal. 2. Press R/C to set Picture Normal condition. 3. Connect the oscilloscope to Red cathode(TP854). • Range : 20 V/div. (AC) (Using 10:1 probe) • Sweep time : 10 µsec/div. 4. Using the R/C call "SUB COL" in SERVICE mode. Adjust SUB COLOUR bus data, so that the 75% White & Red portions of PAL Colour Bar be at the same level shown as **Fig. 8**. 5. Clear the SERVICE mode.	 **Fig. 8**

NTSC CHROMA ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**SUB-TINT (I^2C BUS CONTROL)**	1. Receive the "NTSC3.58 Colour Bar" signal through AV in. 2. Connect the oscilloscope to TP853 (Pin (5) of P882) BLUE-OUT. ● Range : 100mV/div. (AC)(Use Probe 10:1) ● Sweep time : 10 μsec/div. 3. Call the "SUB-TINT" mode in service mode. Adjust the "SUB-TINT" bus data to obtain the waveform shown as Fig. 9. 4. Clear the SERVICE mode.	 Fig. 9 A=B=C

PROTECTOR OPERATION CHECKING

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**BEAM PROTECTOR**	1. Receive "Monoscope Pattern" signal. 2. Set CONTRAST MAX. 3. Set BRIGHT MAX. 4. During the Collector & Emitter of Q883/5/7 short, make sure the protector ON and switch to standby mode.	* Select one of Q883/5/7 to do each short test.
2	**H, V PROTECTOR**	1. Receive "Monoscope Pattern" signal. 2. Connect output of Bias Box to D607 cathode (R606 side). 3. Set voltage of Bias Box to 18V and make sure the protector is not work. 4. Set voltage of Bias Box to 27V, and make sure the protector is work.	
3	**Other protectors**	1. Once finish rectified Electrolytic Capacitor short testing in +B line, check all possible damaged components on +B line. (Use random selected set for inspection)	

A/V INPUT AND OUTPUT CHECKING

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**VIDEO AND AUDIO OUTPUT CHECK**	1. Receive the "PAL Color Bar" signal (100% White Color Bar, Sound 400 Hz 100% Mod.) 2. Terminate the Video output with a 75 ohm impedance. Make sure the output is as specified (1.0 Vp-p ±3 dB). 3. Terminate the Audio output with a 10k ohm impedance. Make sure the output is as specified (1.76 Vp-p ±3 dB).	
2	**VIDEO AND AUDIO INPUT CHECK**	1. Using the TV/AV key on the remote controller, make sure that the modes change in order of TV, AV1, AV2 & TV again and the video & audio output are according to the input terminal for each mode.	

FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**CONTRAST key**	1. Receive "Monoscope Pattern" signal. 2. Set P-Mode to select CONTRAST. 3. Press Volume Up/Down key to check whether the CONTRAST effect is OK or not.	
2	**COLOUR key**	1. Receive "Color Bar" signal. 2. Set P-Mode to select COLOUR. 3. Press Volume Up/Down key to check whether the COLOUR effect is OK or not.	
3	**BRIGHTNESS key**	1. Receive "Monoscope Pattern" signal. 2. Set P-Mode to select BRIGHTNESS. 3. Press Volume Up/Down key to check whether the BRIGHTNESS effect is OK or not.	
4	**TINT key**	1. Receive the "NTSC Colour Bar" signal thru AV in. 2. Set P-Mode to select TINT. 3. Press Volume Up/Down key to check TINT, UP for GREEN direction and DOWN for PURPLE direction whether is OK or not.	
5	**SHARPNESS Key**	1. Receive "Monoscope Pattern" signal. 2. Set P-mode to select SHARPNESS. 3. Press Volume Up/Down key to check whether the SHARPNESS effect is OK or not.	
6	**CH DISPLAY COLOUR**	1. All Ch (1~99) will have an OSD display of the channel number in green colour under AFT ON condition.	
7	**NORMAL Key**	1. Once in PICTURE Mode, and theNORMAL key is pressed, all the settings will be present to normal setting. (Normal setting value for every mode). ● CONTRAST : MAX ● COLOUR : CENTER ● BRIGHTNESS : CENTER ● TINT : CENTER ● SHARPNESS : CENTER	**Notes:If nothing is display mean contrast, colour, bright, tint, sharpness are all in normal setting.**
8	**WHITE TEMP**	1. Receive "Monoscope Pattern" signal. 2. Set FUNCTION to select WHITE TEMP. 3. Press Volume Up/Down key to check WHITE TEMP Option, STANDARD: NORMAL SETTING, WARM for more REDDISH direction changing, COOL for more BLUISH direction changing.	

FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)
(Continued)

<table>
<tr><th>No.</th><th>Adjusting point</th><th>Adjusting procedure/conditions</th><th>Waveform and others</th></tr>
<tr><td>9</td><td>COLOUR SYSTEM</td><td>1. Receive the "PAL COLOUR BAR" signal, press the COLOUR SYSTEM key to select modes except PAL, check the COLOUR is not working properly. Then, select the "PAL" mode. Check again its colour so that it is working properly.
2. Receive "SECAM COLOUR BAR" signal, press COLOUR SYSTEM key to select modes except SECAM, check the COLOUR is not working properly. Then, select the "SECAM" mode. Check again its colour so that it is working properly.
3. Receive "NTSC 4.43/3.58 COLOUR BAR" signal thru AV, press COLOUR SYSTEM key to select modes except N4.43/3.58, check the COLOUR is not working properly. Then, select the "NTSC 4.43/3.58" mode. Check again its colour so that it is working properly.</td><td></td></tr>
<tr><td>10</td><td>SOUND SYSTEM</td><td>1. Receive "PAL-D/K" signal, press the "SOUND SYSTEM" to select B/G, I. Check the sound output is not working properly. Select D/K and check the sound output to make sure it is working properly.
2. Receive "PAL-I" signal, press the "SOUND SYSTEM" to select B/G, D/K. Check the sound output is not working properly. Select I and check the sound output to make sure it is working properly.
3. Receive "PAL-B/G" signal, press the "SOUND SYSTEM"to select I, D/K. Check the sound output is not working properly. Select B/G and check the sound output to make sure it is working properly.
4. Receive "NTSC-M" signal thru AV, press the "SOUND SYSTEM" to select B/G, D/K, I, check the sound output is not working properly. Select M and check the sound output to make sure it is working properly.</td><td></td></tr>
<tr><td>11</td><td>NOISE MUTE CHECKING</td><td>1. Receive "PAL COLOUR BAR" signal.
2. Turn up the volume control to maximum, make sure the sound is heard from the speakers. Then put the unit in no signal state.
3. Check the sound mute is effective.
4. Finally turn sound level of CTV to minimum.</td><td></td></tr>
<tr><td>12</td><td>OSD LANGUAGE QUANTITY CHECK</td><td>Check OSD LANGUAGE quantity and type for respect model.
<table>
<tr><th>Model</th><th>Quantity</th><th>English</th><th>Russian</th><th>Chinese</th><th>French</th><th>Arabic</th><th>Malay</th></tr>
<tr><td>A</td><td>3</td><td>O</td><td>X</td><td>O</td><td>X</td><td>X</td><td>O</td></tr>
<tr><td>B</td><td>3</td><td>O</td><td>X</td><td>O</td><td>X</td><td>X</td><td>O</td></tr>
<tr><td>C</td><td>3</td><td>O</td><td>X</td><td>O</td><td>X</td><td>X</td><td>O</td></tr>
<tr><td>E</td><td>4</td><td>O</td><td>O</td><td>X</td><td>O</td><td>O</td><td>X</td></tr>
<tr><td>F</td><td>5</td><td>O</td><td>X</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>G</td><td>5</td><td>O</td><td>X</td><td>O</td><td>O</td><td>O</td><td>O</td></tr>
<tr><td>J</td><td>2</td><td>O</td><td>O</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
</table></td><td></td></tr>
</table>

HEADPHONE JACK CHECKING (FOR B & C MODELS ONLY)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**HEADPHONE OUTPUT CHECKING**	1. Receive PAL COLOUR PAR with SOUND 400Hz, 100% MODULATION (±50kHz Dev). 2. Maximum volume, and check the headphone output with 400Hz sound and no sound out from speaker.	

MEMORY MAP

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
00	PASS WORD								55	00-FF							
01	PASS WORD								4F	00-FF							
02	PASS WORD								43	00-FF							
03	PASS WORD								A1	00-FF							
04																	
05																	
06	AGC TAKE-OVER								0E	00-3F							
07	V-SLOPE								20	00-3F							
08	V-AMPLITUDE								20	00-3F							
09	V-CENTER								20	00-3F							
0A	H-CENTER								20	00-3F							
0B	H-SIZE								20	00-3F							
0C	EW-PARALLELOGRAM								20	00-3F							
0D	EW-PARABOLA/WIDTH								20	00-3F							
0E	EW-UPPER CORNER								20	00-3F							
0F	EW-LOWER CORNER								20	00-3F							
10	EW-TRAPEZIUM								20	00-3F							
11	HORIZONTAL-BOW								20	00-3F							
12	S-CORRECTION								00	00-3F							
13																	
14																	
15																	
16	DRIVE-R (STANDARD)								20	00-3F							
17	DRIVE-G (STANDARD)								20	00-3F							
18	DRIVE-B (STANDARD)								20	00-3F							
19	DRIVE-R (WARM)								20	00-3F							
1A	DRIVE-G (WARM)								20	00-3F							
1B	DRIVE-B (WARM)								20	00-3F							
1C	DRIVE-R (COOL)								19	00-3F							
1D	DRIVE-G (COOL)								20	00-3F							
1E	DRIVE-B (COOL)								20	00-3F							
1F																	
20																	
21																	
22	SUB-VOLUME								3F	00-3F							
23	SUB-CONTRAST								3F	00-3F							
24	SUB-COLOUR								20	00-3F							
25	SUB-BRIGHTNESS								20	00-3F							
26	SUB-TINT								20	00-3F							
27	SUB-SHARPNESS								20	00-3F							
28	HTL-VOLUME								20	00-3F							
29	HTL-POSITION								FF	00-FF							
2A																	
2B																	
2C																	
2D					OSD-REFERENCE				0F	00-0F							
2E					CUTOFF LEVEL -OFFSET R				08	00-0F							
2F					CUTOFF LEVEL -OFFSET B				08	00-0F							
30					CATHODE DRIVE LEVEL				00	00-0F							
31					Y-DELAY (TV PAL)				0C	00-0F							
32					Y-DELAY (TV SECAM)				0F	00-0F							
33					Y-DELAY (TV N358)				0C	00-0F							
34					Y-DELAY (TV N443)				0C	00-0F							
35					Y-DELAY (TV BW)				0C	00-0F							
36					Y-DELAY (AV PAL)				0C	00-0F							
37					Y-DELAY (AV SECAM)				0F	00-0F							
38					Y-DELAY (AV N443)				0C	00-0F							
39					Y-DELAY (AV N358)				0C	00-0F							
3A					Y-DELAY (AV BW)				0C	00-0F							
3B					COLOUR-OFFSET (PAL)				08	00-0F							
3C					COLOUR-OFFSET (SECAM)				08	00-0F							
3D					COLOUR-OFFSET (N443)				04	00-0F							
3E					COLOUR-OFFSET (N358)				04	00-0F							
3F					SHARPNESS-OFFSET (PAL)				08	00-0F							
MODEL									MODEL								
LETTER NO.									LETTER NO.								

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
40	SHARPNESS-OFFSET (SECAM)								04	00-0F							
41	SHARPNESS-OFFSET (N443)								0C	00-0F							
42	SHARPNESS-OFFSET (N358)								08	00-0F							
43																	
44	FCO	ACL	OSO	EHT	EVG	FFI	AVL	BKS		00-FF							
45	SCM	N443	N358	PB-SEC	BG	I	DK	M		00-FF							
46	SM		FMWS	AV	BTSC	HTL	VMC	VMI		00-FF							
47	HP2	FSL	RUS	FRA	CHN	MLY	ARB	THA		00-FF							
48	AGC						BIL	OBA		00-FF							
49																	
4A																	
4B																	
4C	VOLUME								01	00-3C							
4D	CONTRAST								3C	00-3C							
4E	COLOUR								1E	00-3C							
4F	BRIGHTNESS								1E	00-3C							
50	TINT								1E	00-3C							
51	SHARPNESS								1E	00-3C							
52																	
53																	
54																	
55	POSITION/AV1/AV2								01	00-FF							
56	FAV-POS A								0A	00-FF							
57	FAV-POS B								14	00-FF							
58	FAV-POS C								1E	00-FF							
59	FAV-POS D								28	00-FF							
5A																	
5B																	
5C	POWER								00	00-01							
5D	WHITE-TEMP								00	00-02							
5E	BLUE BACK								00	00-01							
5F	LANGUAGE								00	00-07							
60	DIGIT								00	00-01							
61																	
62	SKIP 0	SKIP 1	SKIP 2	SKIP 3	SKIP 4	SKIP 5	SKIP 6	SKIP 7	80	00-FF							
63	SKIP 8	SKIP 9	SKIP 10	SKIP 11	SKIP 12	SKIP 13	SKIP 14	SKIP 15	00	00-FF							
64	SKIP 16	SKIP 17	SKIP 18	SKIP 19	SKIP 20	SKIP 21	SKIP 22	SKIP 23	00	00-FF							
65	SKIP 24	SKIP 25	SKIP 26	SKIP 27	SKIP 28	SKIP 29	SKIP 30	SKIP 31	00	00-FF							
66	SKIP 32	SKIP 33	SKIP 34	SKIP 35	SKIP 36	SKIP 37	SKIP 38	SKIP 39	00	00-FF							
67	SKIP 40	SKIP 41	SKIP 42	SKIP 43	SKIP 44	SKIP 45	SKIP 46	SKIP 47	00	00-FF							
68	SKIP 48	SKIP 49	SKIP 50	SKIP 51	SKIP 52	SKIP 53	SKIP 54	SKIP 55	00	00-FF							
69	SKIP 56	SKIP 57	SKIP 58	SKIP 59	SKIP 60	SKIP 61	SKIP 62	SKIP 63	00	00-FF							
6A	SKIP 64	SKIP 65	SKIP 66	SKIP 67	SKIP 68	SKIP 69	SKIP 70	SKIP 71	00	00-FF							
6B	SKIP 72	SKIP 73	SKIP 74	SKIP 75	SKIP 76	SKIP 77	SKIP 78	SKIP 79	00	00-FF							
6C	SKIP 80	SKIP 81	SKIP 82	SKIP 83	SKIP 84	SKIP 85	SKIP 86	SKIP 87	00	00-FF							
6D	SKIP 88	SKIP 89	SKIP 90	SKIP 91	SKIP 92	SKIP 93	SKIP 94	SKIP 95	00	00-FF							
6E	SKIP 96	SKIP 97	SKIP 98	SKIP 99					00	00-FF							
6F																	
70																	
71																	
72																	
73																	
74	TUNING FREQUANCY (HIGHER PART)										S-SYS						POS 0
75	TUNING FREQUANCY (LOWER PART)										000:BG						
76	S-SYS			AFT	(auto)			C-SYS			001:I						
77	TUNING FREQUANCY (HIGHER PART)										O1O:DK						POS 1
78	TUNING FREQUANCY (LOWER PART)										011:M						
79	S-SYS			AFT	(auto)			C-SYS									
7A	TUNING FREQUANCY (HIGHER PART)										AFT						POS 2
7B	TUNING FREQUANCY (LOWER PART)										0:OFF						
7C	S-SYS			AFT	(auto)			C-SYS			1:ON						
7D	TUNING FREQUANCY (HIGHER PART)																POS 3
7E	TUNING FREQUANCY (LOWER PART)																
7F	S-SYS			AFT	(auto)			C-SYS									
MODEL									MODEL								
LETTER NO.									LETTER NO.								

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
80	TUNING FREQUANCY (HIGHER PART)																POS 4
81	TUNING FREQUANCY (LOWER PART)																
82		S-SYS		AFT	(auto)			C-SYS									
83	TUNING FREQUANCY (HIGHER PART)																POS 5
84	TUNING FREQUANCY (LOWER PART)																
85		S-SYS		AFT	(auto)			C-SYS									
86	TUNING FREQUANCY (HIGHER PART)																POS 6
87	TUNING FREQUANCY (LOWER PART)																
88		S-SYS		AFT	(auto)			C-SYS									
89	TUNING FREQUANCY (HIGHER PART)																POS 7
8A	TUNING FREQUANCY (LOWER PART)																
8B		S-SYS		AFT	(auto)			C-SYS									
8C	TUNING FREQUANCY (HIGHER PART)																POS 8
8D	TUNING FREQUANCY (LOWER PART)																
8E		S-SYS		AFT	(auto)			C-SYS									
8F	TUNING FREQUANCY (HIGHER PART)																POS 9
90	TUNING FREQUANCY (LOWER PART)																
91		S-SYS		AFT	(auto)			C-SYS									
92	TUNING FREQUANCY (HIGHER PART)																POS 10
93	TUNING FREQUANCY (LOWER PART)																
94		S-SYS		AFT	(auto)			C-SYS									
95	TUNING FREQUANCY (HIGHER PART)																POS 11
96	TUNING FREQUANCY (LOWER PART)																
97		S-SYS		AFT	(auto)			C-SYS									
98	TUNING FREQUANCY (HIGHER PART)																POS 12
99	TUNING FREQUANCY (LOWER PART)																
9A		S-SYS		AFT	(auto)			C-SYS									
9B	TUNING FREQUANCY (HIGHER PART)																POS 13
9C	TUNING FREQUANCY (LOWER PART)																
9D		S-SYS		AFT	(auto)			C-SYS									
9E	TUNING FREQUANCY (HIGHER PART)																POS 14
9F	TUNING FREQUANCY (LOWER PART)																
A0		S-SYS		AFT	(auto)			C-SYS									
A1	TUNING FREQUANCY (HIGHER PART)																POS 15
A2	TUNING FREQUANCY (LOWER PART)																
A3		S-SYS		AFT	(auto)			C-SYS									
A4	TUNING FREQUANCY (HIGHER PART)																POS 16
A5	TUNING FREQUANCY (LOWER PART)																
A6		S-SYS		AFT	(auto)			C-SYS									
A7	TUNING FREQUANCY (HIGHER PART)																POS 17
A8	TUNING FREQUANCY (LOWER PART)																
A9		S-SYS		AFT	(auto)			C-SYS									
AA	TUNING FREQUANCY (HIGHER PART)																POS 18
AB	TUNING FREQUANCY (LOWER PART)																
AC		S-SYS		AFT	(auto)			C-SYS									
AD	TUNING FREQUANCY (HIGHER PART)																POS 19
AE	TUNING FREQUANCY (LOWER PART)																
AF		S-SYS		AFT	(auto)			C-SYS									
B0	TUNING FREQUANCY (HIGHER PART)																POS 20
B1	TUNING FREQUANCY (LOWER PART)																
B2		S-SYS		AFT	(auto)			C-SYS									
B3	TUNING FREQUANCY (HIGHER PART)																POS 21
B4	TUNING FREQUANCY (LOWER PART)																
B5		S-SYS		AFT	(auto)			C-SYS									
B6	TUNING FREQUANCY (HIGHER PART)																POS 22
B7	TUNING FREQUANCY (LOWER PART)																
B8		S-SYS		AFT	(auto)			C-SYS									
B9	TUNING FREQUANCY (HIGHER PART)																POS 23
BA	TUNING FREQUANCY (LOWER PART)																
BB		S-SYS		AFT	(auto)			C-SYS									
BC	TUNING FREQUANCY (HIGHER PART)																POS 24
BD	TUNING FREQUANCY (LOWER PART)																
BE		S-SYS		AFT	(auto)			C-SYS									
BF	TUNING FREQUANCY (HIGHER PART)																POS 25
MODEL									MODEL								
LETTER NO.									LETTER NO.								

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
C0	TUNING FREQUANCY (LOWER PART)																POS 25
C1		S-SYS		AFT	(auto)			C-SYS									
C2	TUNING FREQUANCY (HIGHER PART)																POS 26
C3	TUNING FREQUANCY (LOWER PART)																
C4		S-SYS		AFT	(auto)			C-SYS									
C5	TUNING FREQUANCY (HIGHER PART)																POS 27
C6	TUNING FREQUANCY (LOWER PART)																
C7		S-SYS		AFT	(auto)			C-SYS									
C8	TUNING FREQUANCY (HIGHER PART)																POS 28
C9	TUNING FREQUANCY (LOWER PART)																
CA		S-SYS		AFT	(auto)			C-SYS									
CB	TUNING FREQUANCY (HIGHER PART)																POS 29
CC	TUNING FREQUANCY (LOWER PART)																
CD		S-SYS		AFT	(auto)			C-SYS									
CE	TUNING FREQUANCY (HIGHER PART)																POS 30
CF	TUNING FREQUANCY (LOWER PART)																
D0		S-SYS		AFT	(auto)			C-SYS									
D1	TUNING FREQUANCY (HIGHER PART)																POS 31
D2	TUNING FREQUANCY (LOWER PART)																
D3		S-SYS		AFT	(auto)			C-SYS									
D4	TUNING FREQUANCY (HIGHER PART)																POS 32
D5	TUNING FREQUANCY (LOWER PART)																
D6		S-SYS		AFT	(auto)			C-SYS									
D7	TUNING FREQUANCY (HIGHER PART)																POS 33
D8	TUNING FREQUANCY (LOWER PART)																
D9		S-SYS		AFT	(auto)			C-SYS									
DA	TUNING FREQUANCY (HIGHER PART)																POS 34
DB	TUNING FREQUANCY (LOWER PART)																
DC		S-SYS		AFT	(auto)			C-SYS									
DD	TUNING FREQUANCY (HIGHER PART)																POS 35
DE	TUNING FREQUANCY (LOWER PART)																
DF		S-SYS		AFT	(auto)			C-SYS									
E0	TUNING FREQUANCY (HIGHER PART)																POS 36
E1	TUNING FREQUANCY (LOWER PART)																
E2		S-SYS		AFT	(auto)			C-SYS									
E3	TUNING FREQUANCY (HIGHER PART)																POS 37
E4	TUNING FREQUANCY (LOWER PART)																
E5		S-SYS		AFT	(auto)			C-SYS									
E6	TUNING FREQUANCY (HIGHER PART)																POS 38
E7	TUNING FREQUANCY (LOWER PART)																
E8		S-SYS		AFT	(auto)			C-SYS									
E9	TUNING FREQUANCY (HIGHER PART)																POS 39
EA	TUNING FREQUANCY (LOWER PART)																
EB		S-SYS		AFT	(auto)			C-SYS									
EC	TUNING FREQUANCY (HIGHER PART)																POS 40
ED	TUNING FREQUANCY (LOWER PART)																
EE		S-SYS		AFT	(auto)			C-SYS									
EF	TUNING FREQUANCY (HIGHER PART)																POS 41
F0	TUNING FREQUANCY (LOWER PART)																
F1		S-SYS		AFT	(auto)			C-SYS									
F2	TUNING FREQUANCY (HIGHER PART)																POS 42
F3	TUNING FREQUANCY (LOWER PART)																
F4		S-SYS		AFT	(auto)			C-SYS									
F5	TUNING FREQUANCY (HIGHER PART)																POS 43
F6	TUNING FREQUANCY (LOWER PART)																
F7		S-SYS		AFT	(auto)			C-SYS									
F8	TUNING FREQUANCY (HIGHER PART)																POS 44
F9	TUNING FREQUANCY (LOWER PART)																
FA		S-SYS		AFT	(auto)			C-SYS									
FB	TUNING FREQUANCY (HIGHER PART)																POS 45
FC	TUNING FREQUANCY (LOWER PART)																
FD		S-SYS		AFT	(auto)			C-SYS									
FE																	POS 46
FF																	
MODEL									MODEL								
LETTER NO.									LETTER NO.								

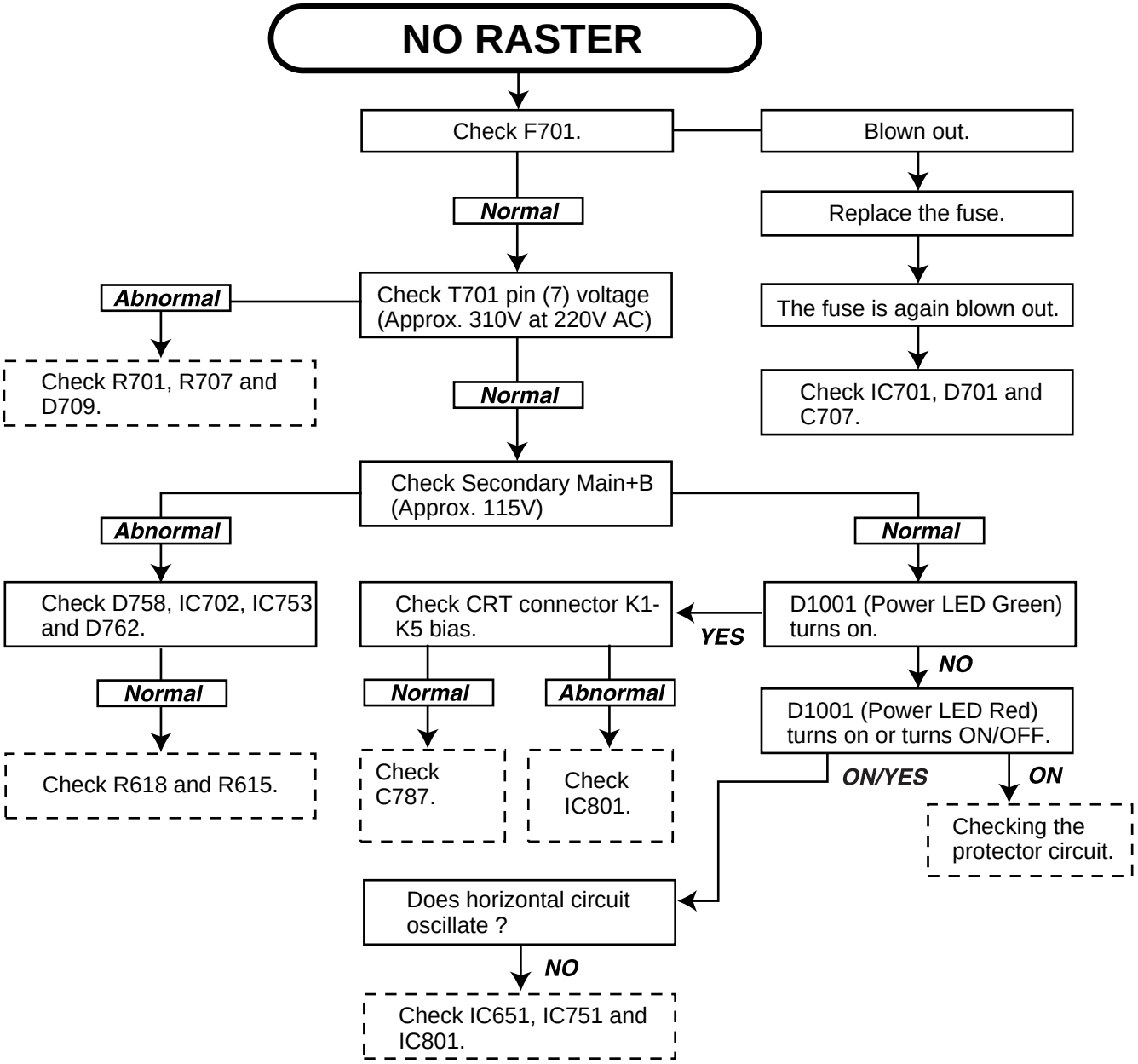
ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
100																	POS 46
101	TUNING FREQUANCY (HIGHER PART)																POS 47
102	TUNING FREQUANCY (LOWER PART)																
103		S-SYS		AFT	(auto)			C-SYS									
104	TUNING FREQUANCY (HIGHER PART)																POS 48
105	TUNING FREQUANCY (LOWER PART)																
106		S-SYS		AFT	(auto)			C-SYS									
107	TUNING FREQUANCY (HIGHER PART)																POS 49
108	TUNING FREQUANCY (LOWER PART)																
109		S-SYS		AFT	(auto)			C-SYS									
10A	TUNING FREQUANCY (HIGHER PART)																POS 50
10B	TUNING FREQUANCY (LOWER PART)																
10C		S-SYS		AFT	(auto)			C-SYS									
10D	TUNING FREQUANCY (HIGHER PART)																POS 51
10E	TUNING FREQUANCY (LOWER PART)																
10F		S-SYS		AFT	(auto)			C-SYS									
110	TUNING FREQUANCY (HIGHER PART)																POS 52
111	TUNING FREQUANCY (LOWER PART)																
112		S-SYS		AFT	(auto)			C-SYS									
113	TUNING FREQUANCY (HIGHER PART)																POS 53
114	TUNING FREQUANCY (LOWER PART)																
115		S-SYS		AFT	(auto)			C-SYS									
116	TUNING FREQUANCY (HIGHER PART)																POS 54
117	TUNING FREQUANCY (LOWER PART)																
118		S-SYS		AFT	(auto)			C-SYS									
119	TUNING FREQUANCY (HIGHER PART)																POS 55
11A	TUNING FREQUANCY (LOWER PART)																
11B		S-SYS		AFT	(auto)			C-SYS									
11C	TUNING FREQUANCY (HIGHER PART)																POS 56
11D	TUNING FREQUANCY (LOWER PART)																
11E		S-SYS		AFT	(auto)			C-SYS									
11F	TUNING FREQUANCY (HIGHER PART)																POS 57
120	TUNING FREQUANCY (LOWER PART)																
121		S-SYS		AFT	(auto)			C-SYS									
122	TUNING FREQUANCY (HIGHER PART)																POS 58
123	TUNING FREQUANCY (LOWER PART)																
124		S-SYS		AFT	(auto)			C-SYS									
125	TUNING FREQUANCY (HIGHER PART)																POS 59
126	TUNING FREQUANCY (LOWER PART)																
127		S-SYS		AFT	(auto)			C-SYS									
128	TUNING FREQUANCY (HIGHER PART)																POS 60
129	TUNING FREQUANCY (LOWER PART)																
12A		S-SYS		AFT	(auto)			C-SYS									
12B	TUNING FREQUANCY (HIGHER PART)																POS 61
12C	TUNING FREQUANCY (LOWER PART)																
12D		S-SYS		AFT	(auto)			C-SYS									
12E	TUNING FREQUANCY (HIGHER PART)																POS 62
12F	TUNING FREQUANCY (LOWER PART)																
130		S-SYS		AFT	(auto)			C-SYS									
131	TUNING FREQUANCY (HIGHER PART)																POS 63
132	TUNING FREQUANCY (LOWER PART)																
133		S-SYS		AFT	(auto)			C-SYS									
134	TUNING FREQUANCY (HIGHER PART)																POS 64
135	TUNING FREQUANCY (LOWER PART)																
136		S-SYS		AFT	(auto)			C-SYS									
137	TUNING FREQUANCY (HIGHER PART)																POS 65
138	TUNING FREQUANCY (LOWER PART)																
139		S-SYS		AFT	(auto)			C-SYS									
13A	TUNING FREQUANCY (HIGHER PART)																POS 66
13B	TUNING FREQUANCY (LOWER PART)																
13C		S-SYS		AFT	(auto)			C-SYS									
13D	TUNING FREQUANCY (HIGHER PART)																POS 67
13E	TUNING FREQUANCY (LOWER PART)																
13F		S-SYS		AFT	(auto)			C-SYS									
MODEL									MODEL								
LETTER NO.									LETTER NO.								

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
140	TUNING FREQUANCY (HIGHER PART)																POS 68
141	TUNING FREQUANCY (LOWER PART)																
142		S-SYS		AFT	(auto)			C-SYS									
143	TUNING FREQUANCY (HIGHER PART)																POS 69
144	TUNING FREQUANCY (LOWER PART)																
145		S-SYS		AFT	(auto)			C-SYS									
146	TUNING FREQUANCY (HIGHER PART)																POS 70
147	TUNING FREQUANCY (LOWER PART)																
148		S-SYS		AFT	(auto)			C-SYS									
149	TUNING FREQUANCY (HIGHER PART)																POS 71
14A	TUNING FREQUANCY (LOWER PART)																
14B		S-SYS		AFT	(auto)			C-SYS									
14C	TUNING FREQUANCY (HIGHER PART)																POS 72
14D	TUNING FREQUANCY (LOWER PART)																
14E		S-SYS		AFT	(auto)			C-SYS									
14F	TUNING FREQUANCY (HIGHER PART)																POS 73
150	TUNING FREQUANCY (LOWER PART)																
151		S-SYS		AFT	(auto)			C-SYS									
152	TUNING FREQUANCY (HIGHER PART)																POS 74
153	TUNING FREQUANCY (LOWER PART)																
154		S-SYS		AFT	(auto)			C-SYS									
155	TUNING FREQUANCY (HIGHER PART)																POS 75
156	TUNING FREQUANCY (LOWER PART)																
157		S-SYS		AFT	(auto)			C-SYS									
158	TUNING FREQUANCY (HIGHER PART)																POS 76
159	TUNING FREQUANCY (LOWER PART)																
15A		S-SYS		AFT	(auto)			C-SYS									
15B	TUNING FREQUANCY (HIGHER PART)																POS 77
15C	TUNING FREQUANCY (LOWER PART)																
15D		S-SYS		AFT	(auto)			C-SYS									
15E	TUNING FREQUANCY (HIGHER PART)																POS 78
15F	TUNING FREQUANCY (LOWER PART)																
160		S-SYS		AFT	(auto)			C-SYS									
161	TUNING FREQUANCY (HIGHER PART)																POS 79
162	TUNING FREQUANCY (LOWER PART)																
163		S-SYS		AFT	(auto)			C-SYS									
164	TUNING FREQUANCY (HIGHER PART)																POS 80
165	TUNING FREQUANCY (LOWER PART)																
166		S-SYS		AFT	(auto)			C-SYS									
167	TUNING FREQUANCY (HIGHER PART)																POS 81
168	TUNING FREQUANCY (LOWER PART)																
169		S-SYS		AFT	(auto)			C-SYS									
16A	TUNING FREQUANCY (HIGHER PART)																POS 82
16B	TUNING FREQUANCY (LOWER PART)																
16C		S-SYS		AFT	(auto)			C-SYS									
16D	TUNING FREQUANCY (HIGHER PART)																POS 83
16E	TUNING FREQUANCY (LOWER PART)																
16F		S-SYS		AFT	(auto)			C-SYS									
170	TUNING FREQUANCY (HIGHER PART)																POS 84
171	TUNING FREQUANCY (LOWER PART)																
172		S-SYS		AFT	(auto)			C-SYS									
173	TUNING FREQUANCY (HIGHER PART)																POS 85
174	TUNING FREQUANCY (LOWER PART)																
175		S-SYS		AFT	(auto)			C-SYS									
176	TUNING FREQUANCY (HIGHER PART)																POS 86
177	TUNING FREQUANCY (LOWER PART)																
178		S-SYS		AFT	(auto)			C-SYS									
179	TUNING FREQUANCY (HIGHER PART)																POS 87
17A	TUNING FREQUANCY (LOWER PART)																
17B		S-SYS		AFT	(auto)			C-SYS									
17C	TUNING FREQUANCY (HIGHER PART)																POS 88
17D	TUNING FREQUANCY (LOWER PART)																
17E		S-SYS		AFT	(auto)			C-SYS									
17F																	POS 89
MODEL									MODEL								
LETTER NO.									LETTER NO.								

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
180																	POS 89
181																	
182	TUNING FREQUANCY (HIGHER PART)																POS 90
183	TUNING FREQUANCY (LOWER PART)																
184		S-SYS		AFT	(auto)			C-SYS									
185	TUNING FREQUANCY (HIGHER PART)																POS 91
186	TUNING FREQUANCY (LOWER PART)																
187		S-SYS		AFT	(auto)			C-SYS									
188	TUNING FREQUANCY (HIGHER PART)																POS 92
189	TUNING FREQUANCY (LOWER PART)																
18A		S-SYS		AFT	(auto)			C-SYS									
18B	TUNING FREQUANCY (HIGHER PART)																POS 93
18C	TUNING FREQUANCY (LOWER PART)																
18D		S-SYS		AFT	(auto)			C-SYS									
18E	TUNING FREQUANCY (HIGHER PART)																POS 94
18F	TUNING FREQUANCY (LOWER PART)																
190		S-SYS		AFT	(auto)			C-SYS									
191	TUNING FREQUANCY (HIGHER PART)																POS 95
192	TUNING FREQUANCY (LOWER PART)																
193		S-SYS		AFT	(auto)			C-SYS									
194	TUNING FREQUANCY (HIGHER PART)																POS 96
195	TUNING FREQUANCY (LOWER PART)																
196		S-SYS		AFT	(auto)			C-SYS									
197	TUNING FREQUANCY (HIGHER PART)																POS 97
198	TUNING FREQUANCY (LOWER PART)																
199		S-SYS		AFT	(auto)			C-SYS									
19A	TUNING FREQUANCY (HIGHER PART)																POS 98
19B	TUNING FREQUANCY (LOWER PART)																
19C		S-SYS		AFT	(auto)			C-SYS									
19D	TUNING FREQUANCY (HIGHER PART)																POS 99
19E	TUNING FREQUANCY (LOWER PART)																
19F		S-SYS		AFT	(auto)			C-SYS									
1A0																	AV1
1A1																	
1A2					(auto)			C-SYS									
1A3																	AV2
1A4																	
1A5					(auto)			C-SYS									
1A6																	
1A7																	
1A8																	
1A9																	
1AA																	
1AB																	
1AC																	
1AD																	
1AE																	
1AF																	
1B0																	
1B1																	
1B2																	
1B3																	
1B4																	
1B5																	
1B6																	
1B7																	
1B8																	
1B9																	
1BA																	
1BB																	
1BC																	
1BD																	
1BE																	
1BF																	
MODEL									MODEL								
LETTER NO.									LETTER NO.								

ADDRESS	DATA								MICON	EEPROM	EEPROM	CHASSIS		CTV FINAL		LAST INITIAL SETTING DATA	REMARK
(HEX)	D7	D6	D5	D4	D3	D2	D1	D0	DEFAULT	RANGE	WRITE(CPU)	CHECK DATA	CHECK TYPE	CHECK DATA	CHECK TYPE		
1C0																	
1C1																	
1C2																	
1C3																	
1C4																	
1C5																	
1C6																	
1C7																	
1C8																	
1C9																	
1CA																	
1CB																	
1CC																	
1CD																	
1CE																	
1CF																	
1D0																	
1D1																	
1D2																	
1D3																	
1D4																	
1D5																	
1D6																	
1D7																	
1D8																	
1D9																	
1DA																	
1DB																	
1DC																	
1DD																	
1DE																	
1DF																	
1E0																	
1E1																	
1E2																	
1E3																	
1E4																	
1E5																	
1E6																	
1E7																	
1E8																	
1E9																	
1EA																	
1EB																	
1EC																	
1ED																	
1EE																	
1EF																	
1F0																	
1F1																	
1F2																	
1F3																	
1F4																	
1F5																	
1F6																	
1F7																	
1F8																	
1F9																	
1FA																	
1FB																	
1FC																	
1FD																	
1FE																	
1FF																	
MODEL									MODEL								
LETTER NO.									LETTER NO.								

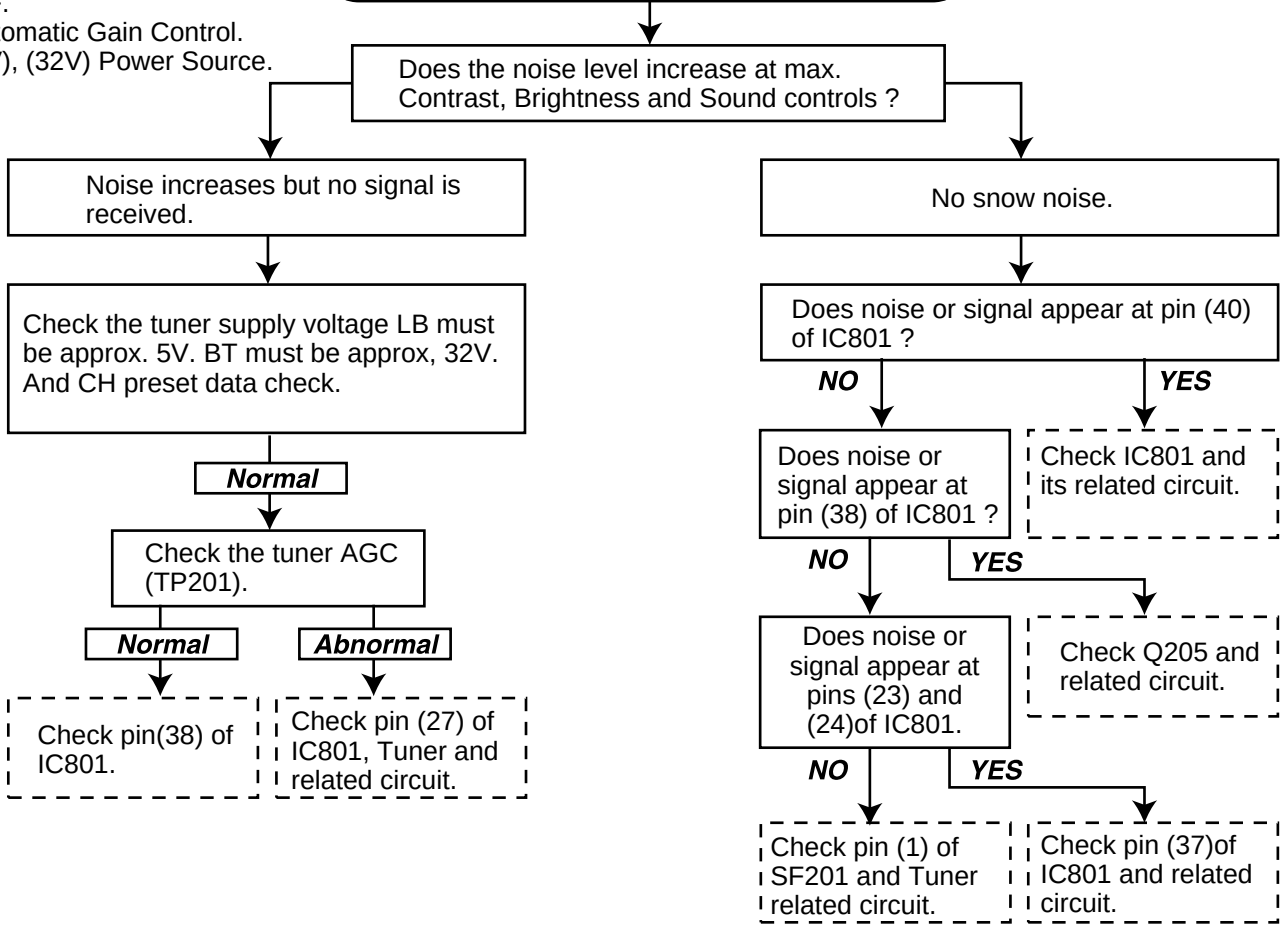
TROUBLE SHOOTING TABLE



TROUBLE SHOOTING TABLE (Continued)

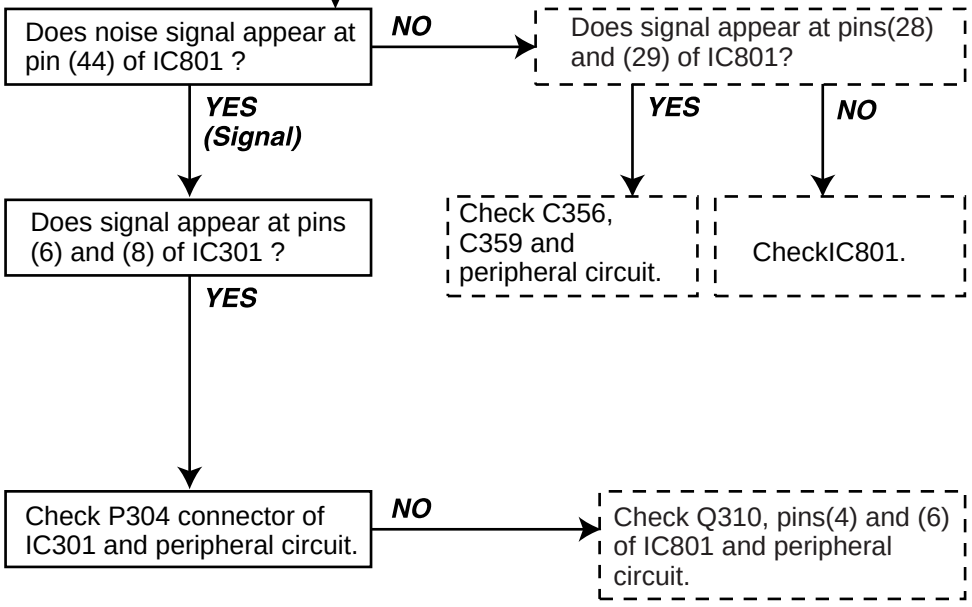
CIRCUITS TO BE CHECKED:
- Tuner.
- PIF.
- Automatic Gain Control.
- (5V), (32V) Power Source.

NO PICTURE, NO SOUND


Does the noise level increase at max. Contrast, Brightness and Sound controls ?
Noise increases but no signal is received.
Check the tuner supply voltage LB must be approx. 5V. BT must be approx, 32V. And CH preset data check.
Normal
Check the tuner AGC (TP201).
Normal
Abnormal
Check pin(38) of IC801.
Check pin (27) of IC801, Tuner and related circuit.
No snow noise.
Does noise or signal appear at pin (40) of IC801 ?
NO
YES
Does noise or signal appear at pin (38) of IC801 ?
Check IC801 and its related circuit.
NO
YES
Does noise or signal appear at pins (23) and (24)of IC801.
Check Q205 and related circuit.
NO
YES
Check pin (1) of SF201 and Tuner related circuit.
Check pin (37)of IC801 and related circuit.

CIRCUITS TO BE CHECKED:
- Sound system pins (28), (29) and (44) of IC801.
- Sound Detector Circuit.
- Sound Switch and Att. Control.
- Audio Output Circuit.

NO SOUND


Does noise signal appear at pin (44) of IC801 ?
NO
Does signal appear at pins(28) and (29) of IC801?
YES (Signal)
YES
NO
Does signal appear at pins (6) and (8) of IC301 ?
Check C356, C359 and peripheral circuit.
CheckIC801.
YES
Check P304 connector of IC301 and peripheral circuit.
NO
Check Q310, pins(4) and (6) of IC801 and peripheral circuit.

TROUBLE SHOOTING TABLE (Continued)

NEITHER VERTICAL NOR HORIZONTAL SYNCHRONIZATION

CIRCUIT TO BE CHECKED:
- Sync. Separator Circuit.

Check pins(33) and (34) of IC801.

DEFECTIVE VERTICAL AMP. AND VERTICAL LINEARITY

Readjust vertical size. (Bas Data)

Vertical linearity and size is abnormal.

Check R504, R503, R506, R513, C517 and D501.

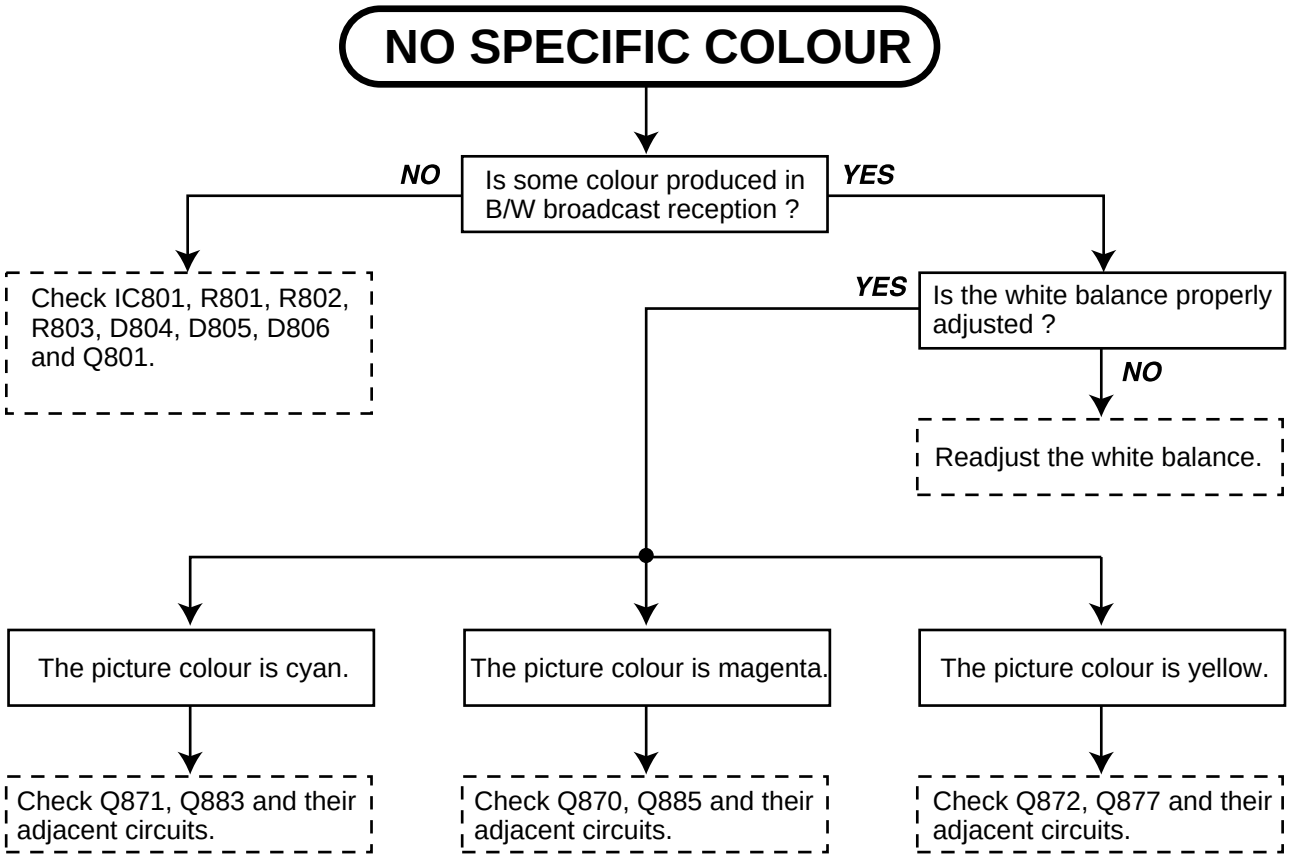
NO VERTICAL SCAN

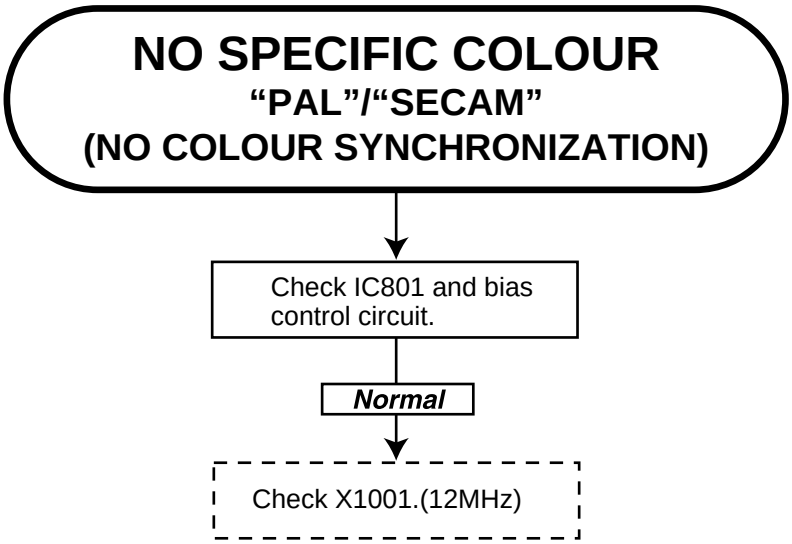
Check IC501.

Normal → Check C503 and C507.

Abnormal → Check IC501.

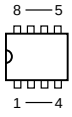
TROUBLE SHOOTING TABLE (Continued)


NO SPECIFIC COLOUR
Is some colour produced in B/W broadcast reception ?
NO
YES
Check IC801, R801, R802, R803, D804, D805, D806 and Q801.
Is the white balance properly adjusted ?
YES
NO
Readjust the white balance.
The picture colour is cyan.
The picture colour is magenta.
The picture colour is yellow.
Check Q871, Q883 and their adjacent circuits.
Check Q870, Q885 and their adjacent circuits.
Check Q872, Q877 and their adjacent circuits.

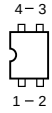


SOLID STATE DEVICE BASE DIAGRAM
固体器件基座图

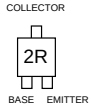
TOP VIEW 俯视图



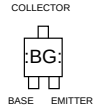
M24C04W



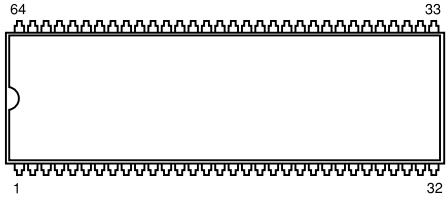
FX0008GE



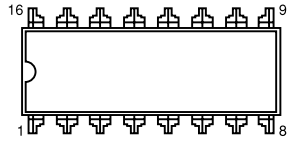
D601A



BF09A

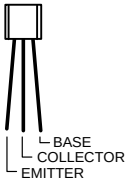


iX3311CE

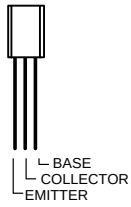


TDA9821

SIDE VIEW 侧视图

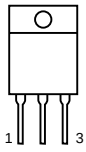


2SA1015
2SC1815

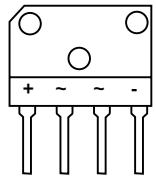


2SC2482

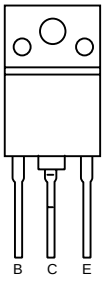
PST573J



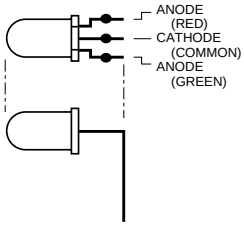
SE115N



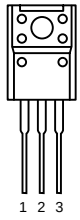
DX0386CE



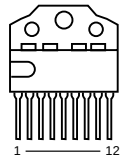
2SD1877



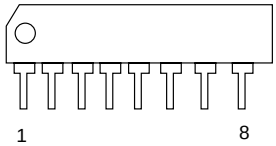
PX0423CE



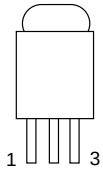
KA7808
KA7805



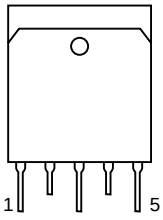
TDA7056A



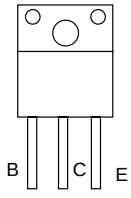
LA7016



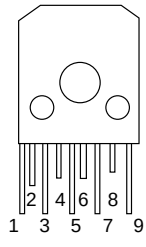
TA48M033



STRF6654

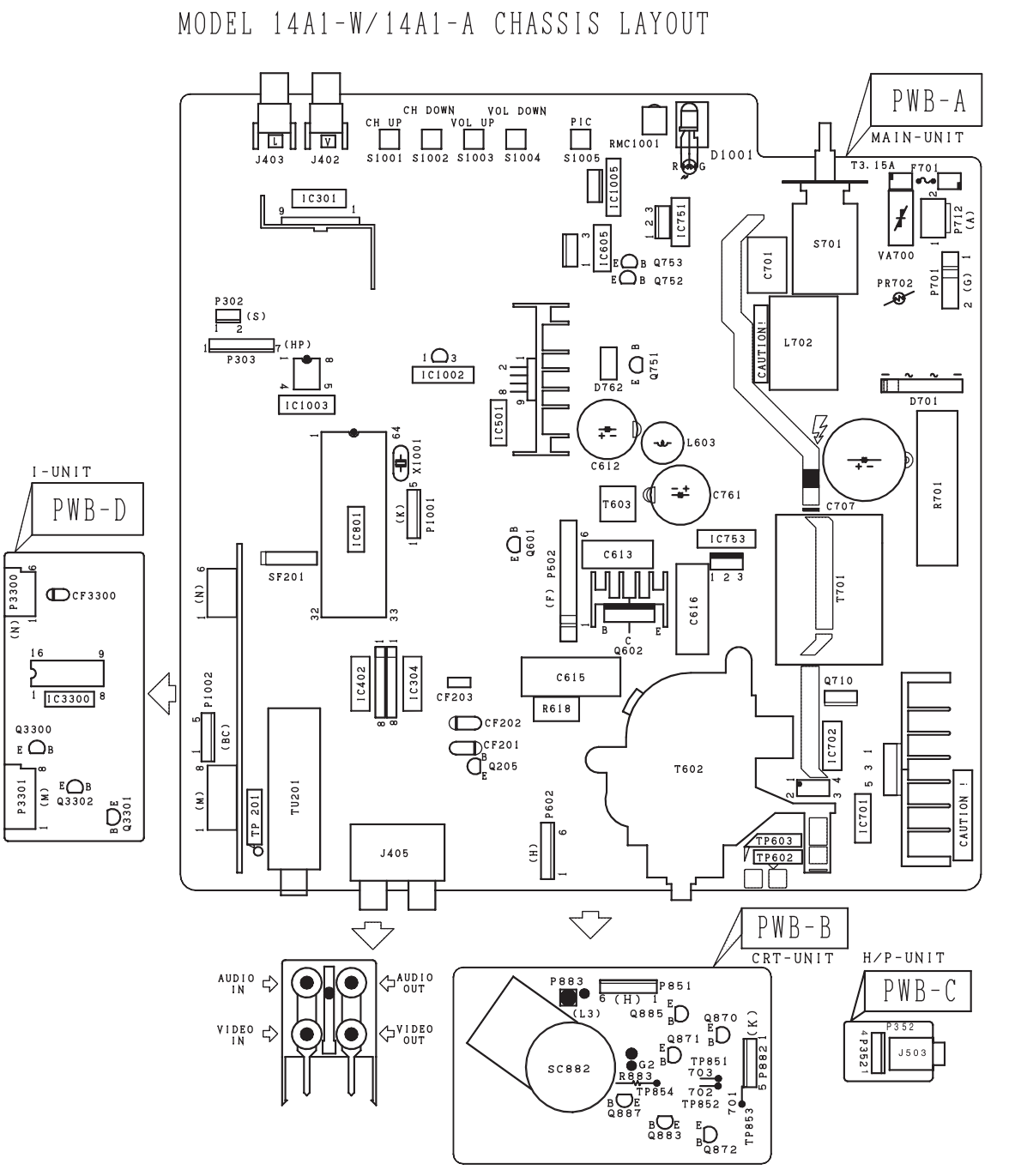


C4517
TF321S

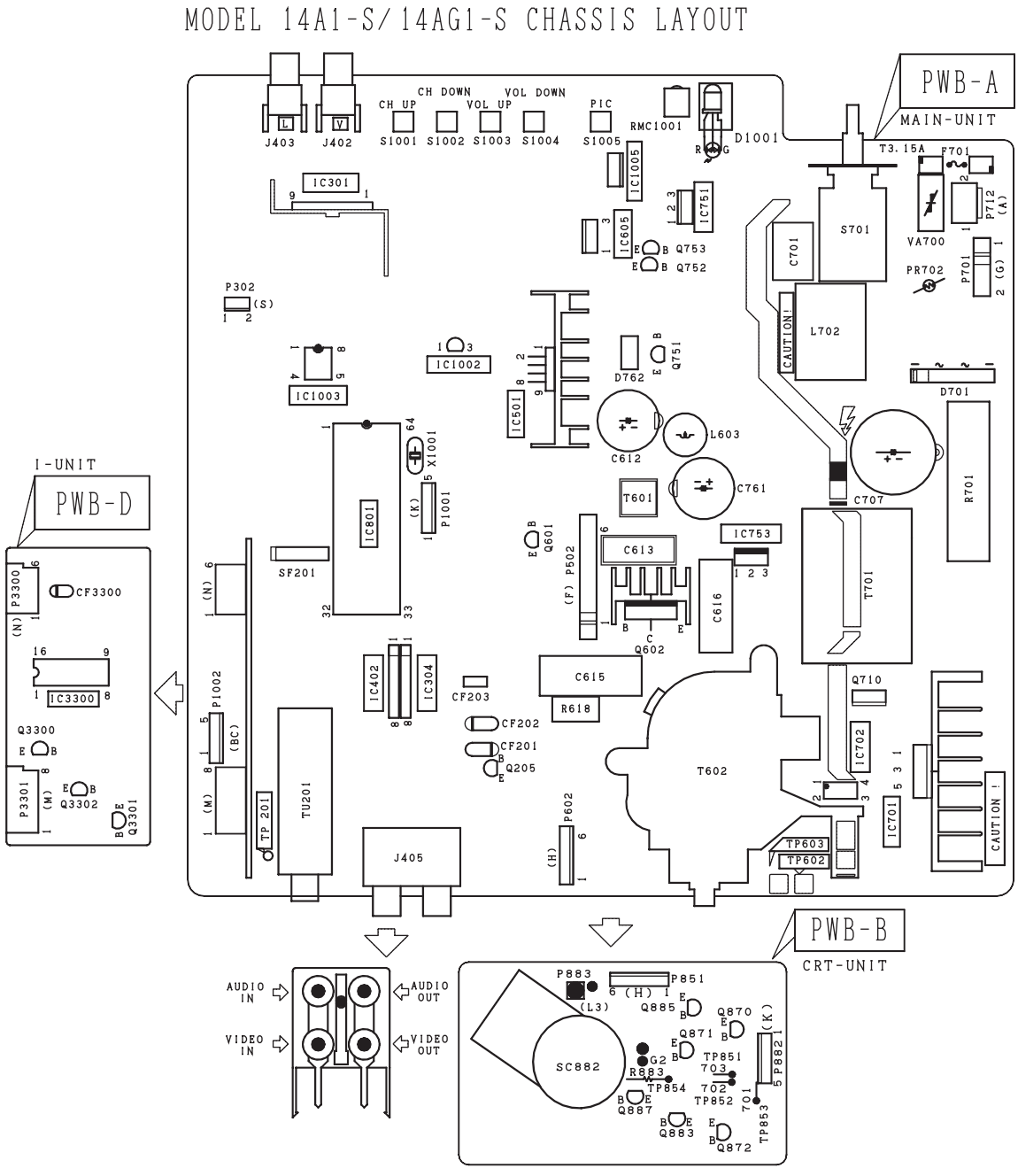


TDA8357

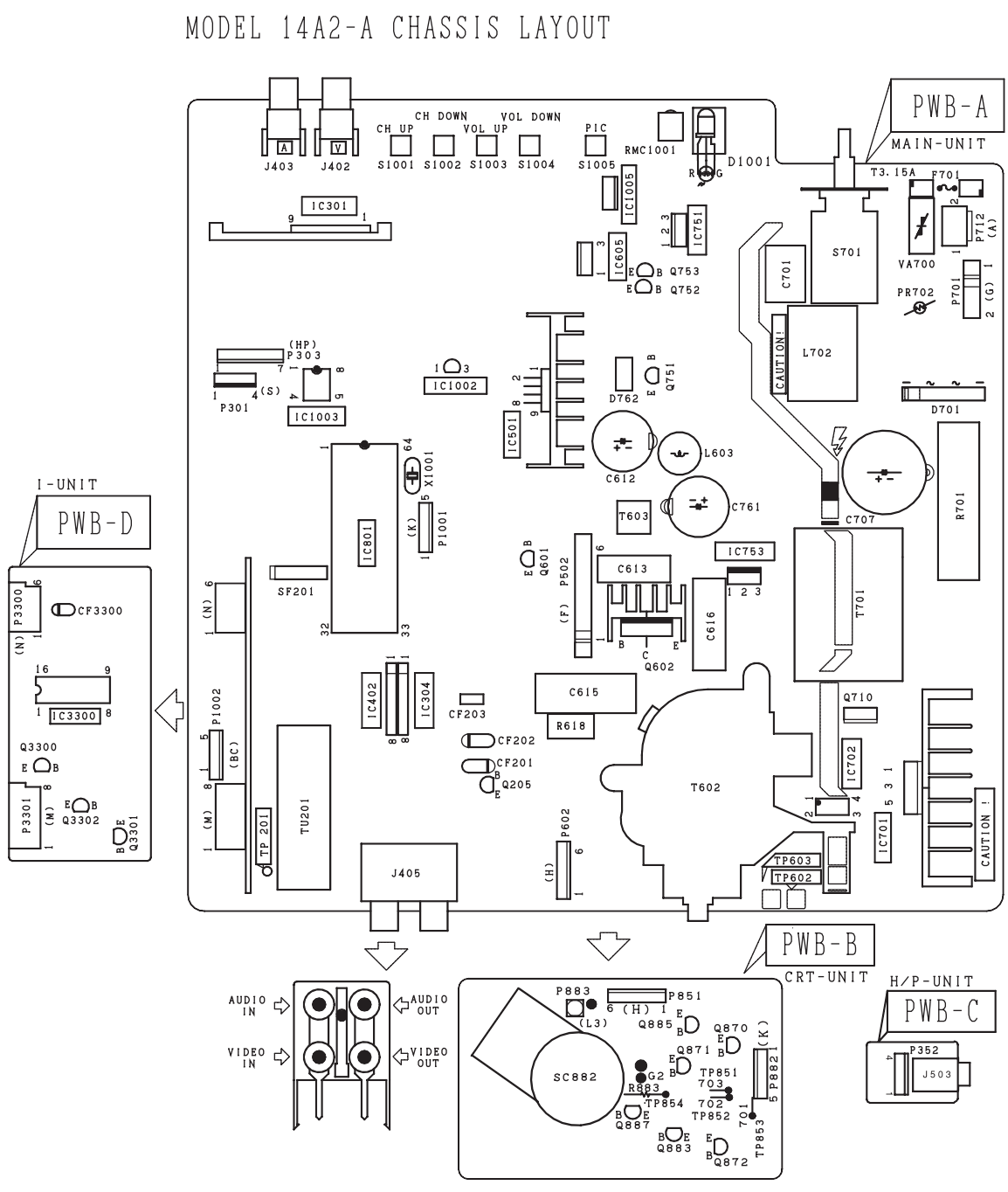
MODEL 14A1-A/W CHASSIS LAYOUT
14A1-A/W 型机芯底盘电路布置



MODEL 14A1-S, 14AG1-M/S CHASSIS LAYOUT
14A1-S、14AG1-M/S 型机芯底盘电路布置

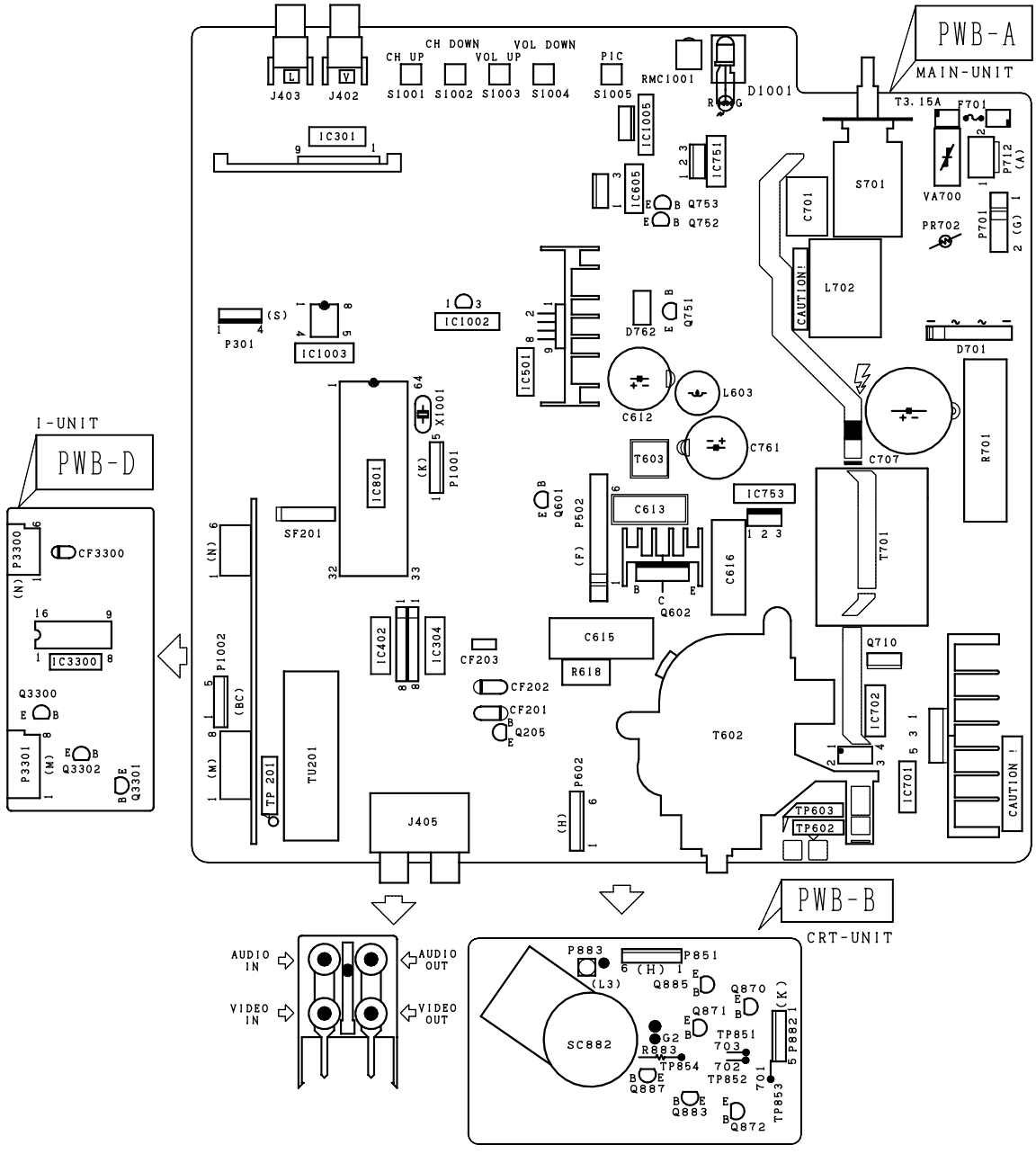


MODEL 14A2-A CHASSIS LAYOUT
14A2-A 型机芯底盘电路布置

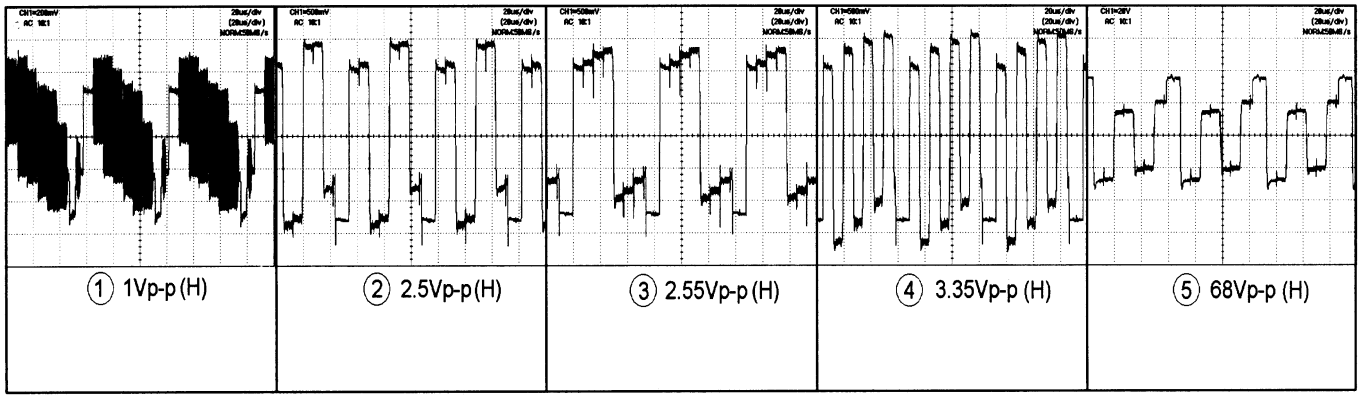


MODEL 14A2-S, 14AG2-M/S(G)/S(Y) CHASSIS LAYOUT
14A2-S，14AG-1M/S(G)/S(Y) 型机芯底盘电路布置

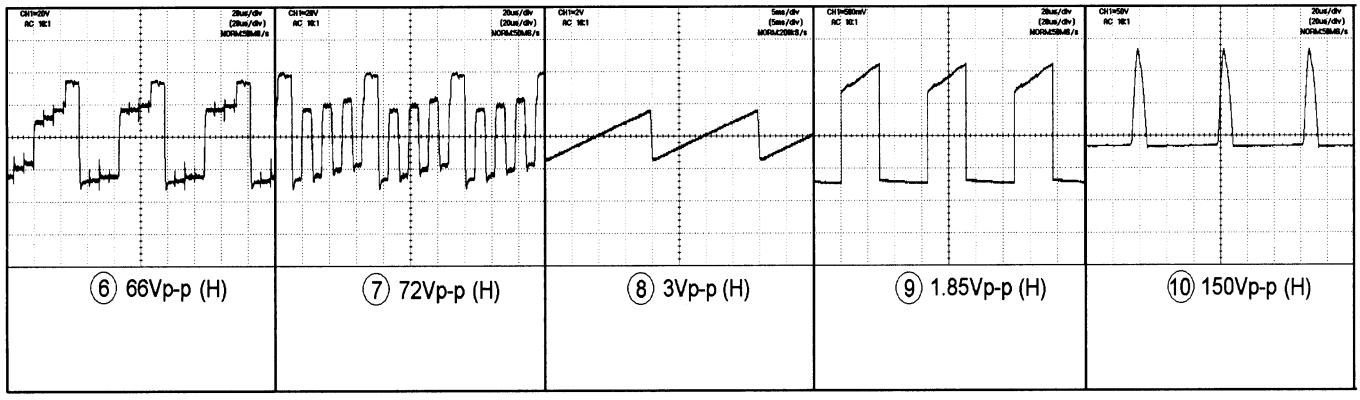
MODEL 14AG2-M/14A2-S/14AG2-S/14A2-SB CHASSIS LAYOUT



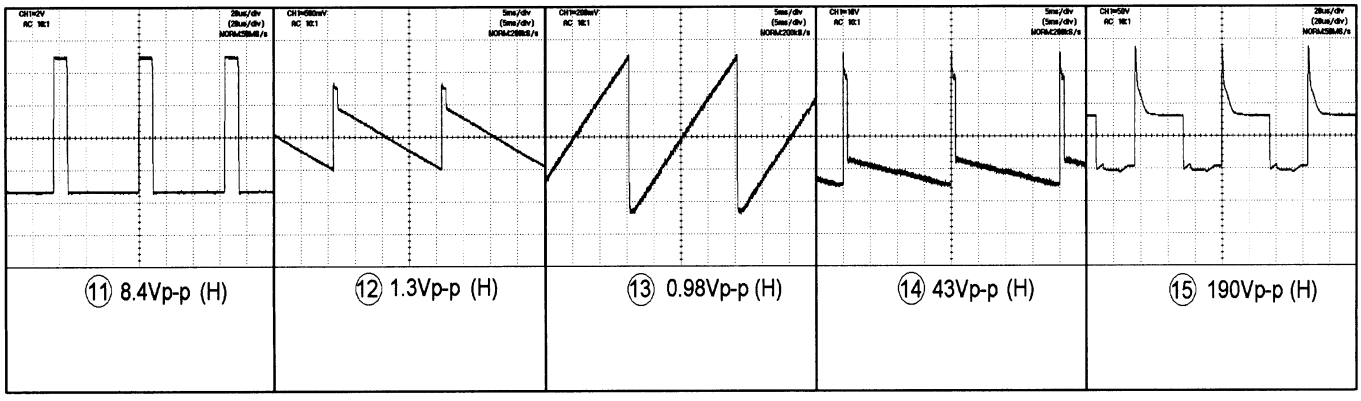
WAVEFORMS
波形图



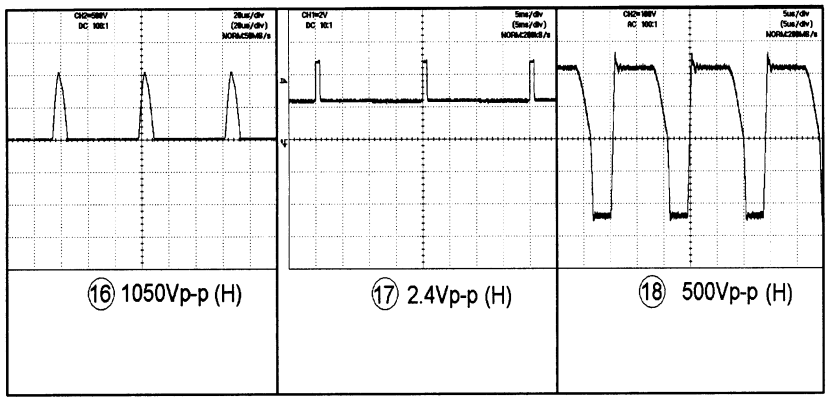
① 1Vp-p (H) ② 2.5Vp-p (H) ③ 2.55Vp-p (H) ④ 3.35Vp-p (H) ⑤ 68Vp-p (H)



⑥ 66Vp-p (H) ⑦ 72Vp-p (H) ⑧ 3Vp-p (H) ⑨ 1.85Vp-p (H) ⑩ 150Vp-p (H)



⑪ 8.4Vp-p (H) ⑫ 1.3Vp-p (H) ⑬ 0.98Vp-p (H) ⑭ 43Vp-p (H) ⑮ 190Vp-p (H)



⑯ 1050Vp-p (H) ⑰ 2.4Vp-p (H) ⑱ 500Vp-p (H)

DESCRIPTION OF SCHEMATIC DIAGRAM

SAFETY NOTES:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "⚠ " ( ) ARE IMPOTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE (── - ──) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE.
WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

NOTES:

1. *The unit of resistance "ohm" is omitted. (K = 1000 ohms, M = Mega ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are µF, unless otherwise noted. (P = µµF).*

VOLTAGE MEASUREMENT CONDITIONS:

1. *Voltages in parenthesis measured with no signal.*
2. *Voltages without parenthesis measured with 3mV B & W or Colour signal.*
3. *All the voltages in each point are measured with VTVM.*

WAVEFORM MEASUREMENT CONDITIONS:

1. *The colour bar generator signal of 1.0V peak applied at pin (24) of IC201.*
2. *Approximately 4V AGC bias .*

电路原理图的说明

安全注意事项：

1. 在进行部件更换之前，务请拔出电源插头。
2. 本装置工作时，机芯底盘的半导体散热片有触电之虑，务请注意。

安全使用注意要点：

标有“⚠”（ ）的部件对于电视机安全的维护有至关重要的意义。为了维护本机的安全和使本机能正常工作，必须使用指定品来更换这些部件。

维修注意：

被（── - ──）线围起的地方直接和交流电压连接。当对该处进行维修时，为了排除遭受电击的危险性，要在电视接收机和交流电源之间连接隔离变压器。

电路单位说明：

1. 电阻欧姆 (Ω) 单位予以略记 (K=千欧姆，M=兆欧姆)。
2. 除特别说明外，图中电阻功率均为 1/8 瓦特。
3. 除特别说明者（P=微微法拉）外，图中电容单位均为 µF（微法拉）。

电压测定条件

1. 括号中的电压压值为无信号状态下所测。
2. 括号外的电压值为 3mV 黑白或彩色信号状态下所测。
3. 所有测试点的电压值均为电子管电压计 VTVM 所测。

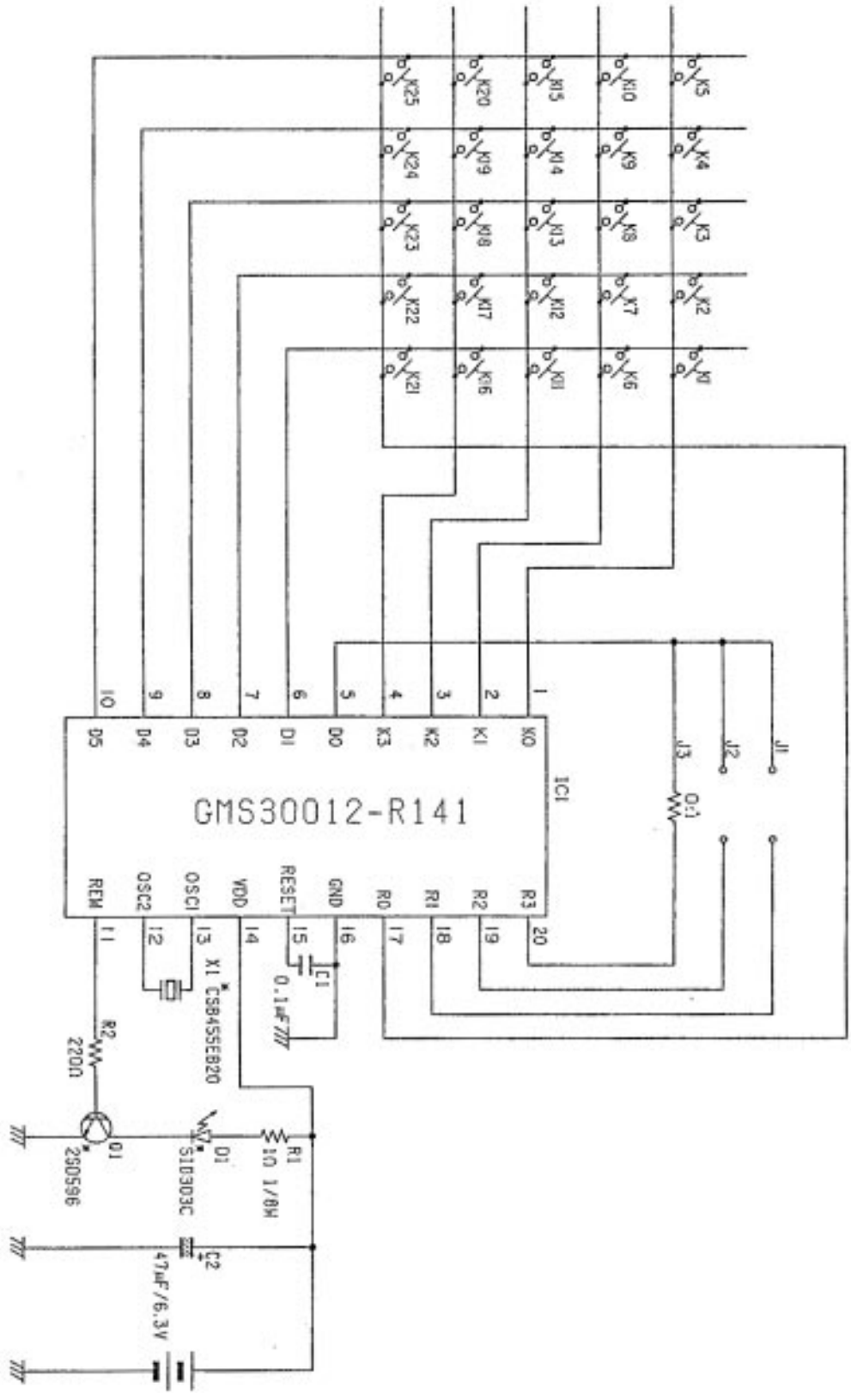
波形测定条件：

1. 施加 1.5Vp-p 的彩条发生器信号于视频缓冲放大器 Q202 的基极。
2. 自动增益控制偏压约为 4.0V。

■ Infrared Remote Control Unit
红外线遥控器

RRMCG1342PESA

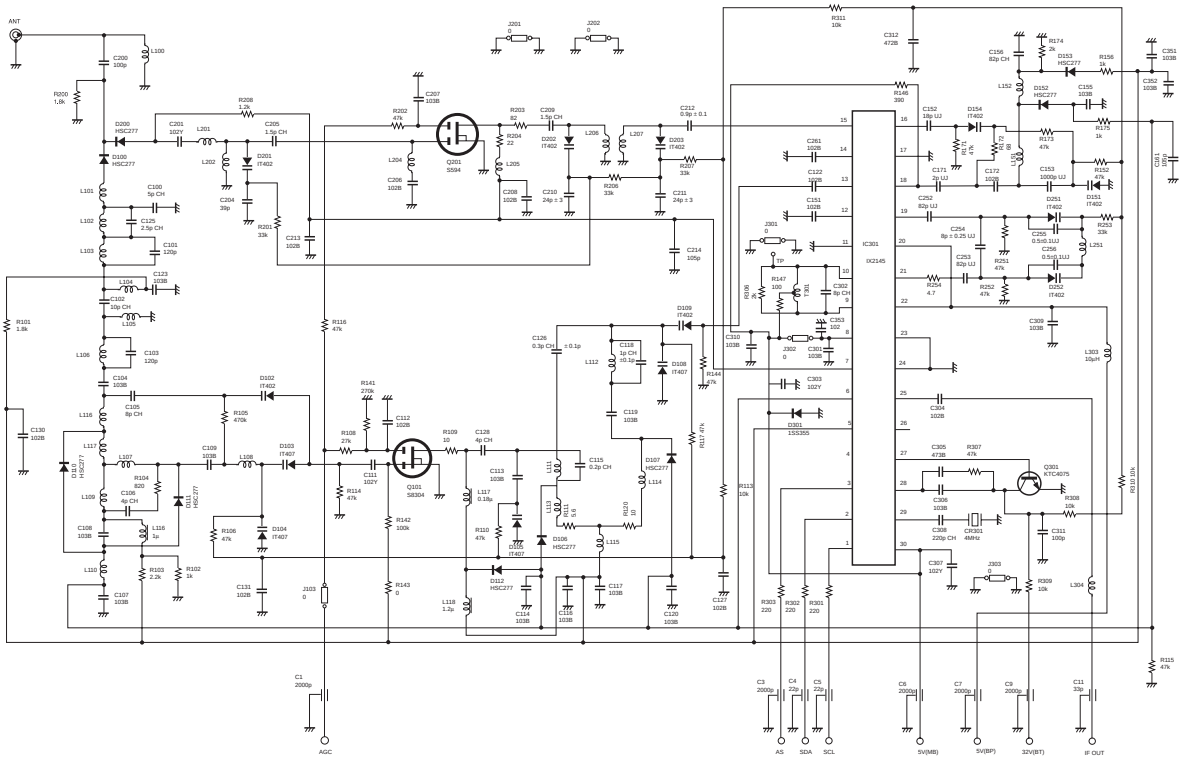
Note:The parts here shown are supplied as an assembly but not independently.
注意：在更换零件订货单时，请以一套为最小单位，切勿以单件订货。



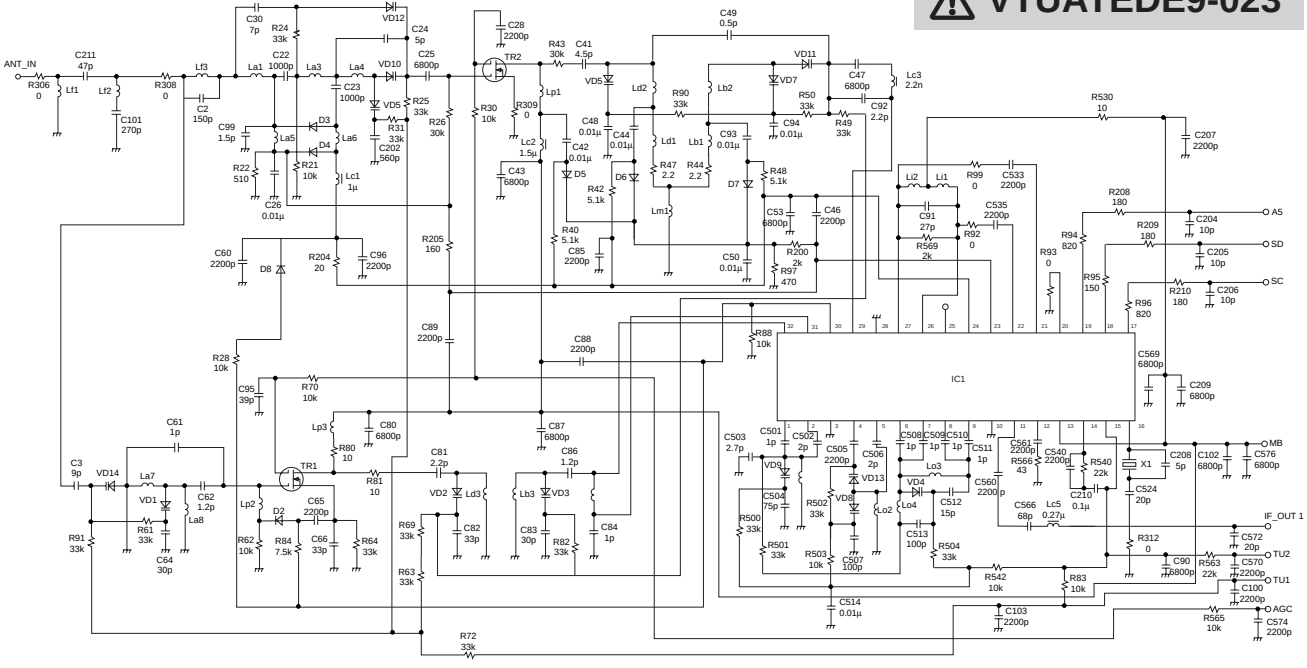
■ TUNER
调谐器

⚠ VTUVTST5HD84/

Note:The parts here shown are supplied as an assembly but not independently.
注意：在更换零件订货时，请以一套为最小单位，切勿以单件订货。



⚠ VTUATEDE9-023

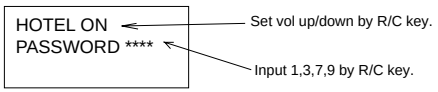


UA1 HOTEL MODE APPLICATION

How to enable/disable the "Hotel Mode" ?

Ans: a) Press the R/C (FUNCTION) {1} key until language selection appear, within five second press the (one/two digit) {2} key and keep pressing it for five second, then you can see the hotel mode with four digits password.

b) Key in the four digits password starting with number "1", "3", "7", "9", then the hotel mode will be enable, you can switch on/off the hotel mode by using R/C (volume up/down) {3} key.



#1 Ch 1 is your selected channel for hotel mode.

* We recommend
  Before set the hotel mode, it is better to choose ch 1 & set s-vol level Up to 75% full scale.
  After set hotel mode, starting channel will be always ch 1 & maximum sound level out will be set the half of full scale.
* If you set hotel mode in AV, starting channel will be the last ch which you received before power off (same as normal operation)

CONDITION:

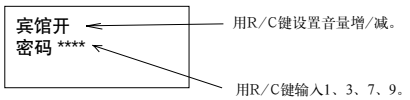
When using hotel mode, user can control "contrast", "brightness", "sharpness" and "tint" function.
But after power off, it will return to the initial setting.
You can't use:--
Preset mode
Fine tuning
Skip mode
System selection
The others function is allowed to be used.

UA1 宾馆模式应用

如何启动/禁用“宾馆模式”？

解决：a) 按R/C（功能）{1}键直至出现语言选择，在五秒钟内按（1/2位）{2}键并持续按五秒钟，出现带有四位密码的宾馆模式。

b) 依次键入四位密码“1”、“3”、“7”、“9”，启动宾馆模式，然后即可用R/C（音量增/减）{3}键来打开/关闭宾馆模式。



#1 1频道是为宾馆模式选择的频道。

* 我们建议
  在设置宾馆模式之前，最好选择1频道并将音量电平提高到全刻度的75%。
  设置宾馆模式后，开始频道将总是1频道并且最大音量输出会被设置为全刻度的一半。
* 如果在AV模式下设置宾馆模式，开始频道将是上次关机时接收的频道。（与正常操作相同）

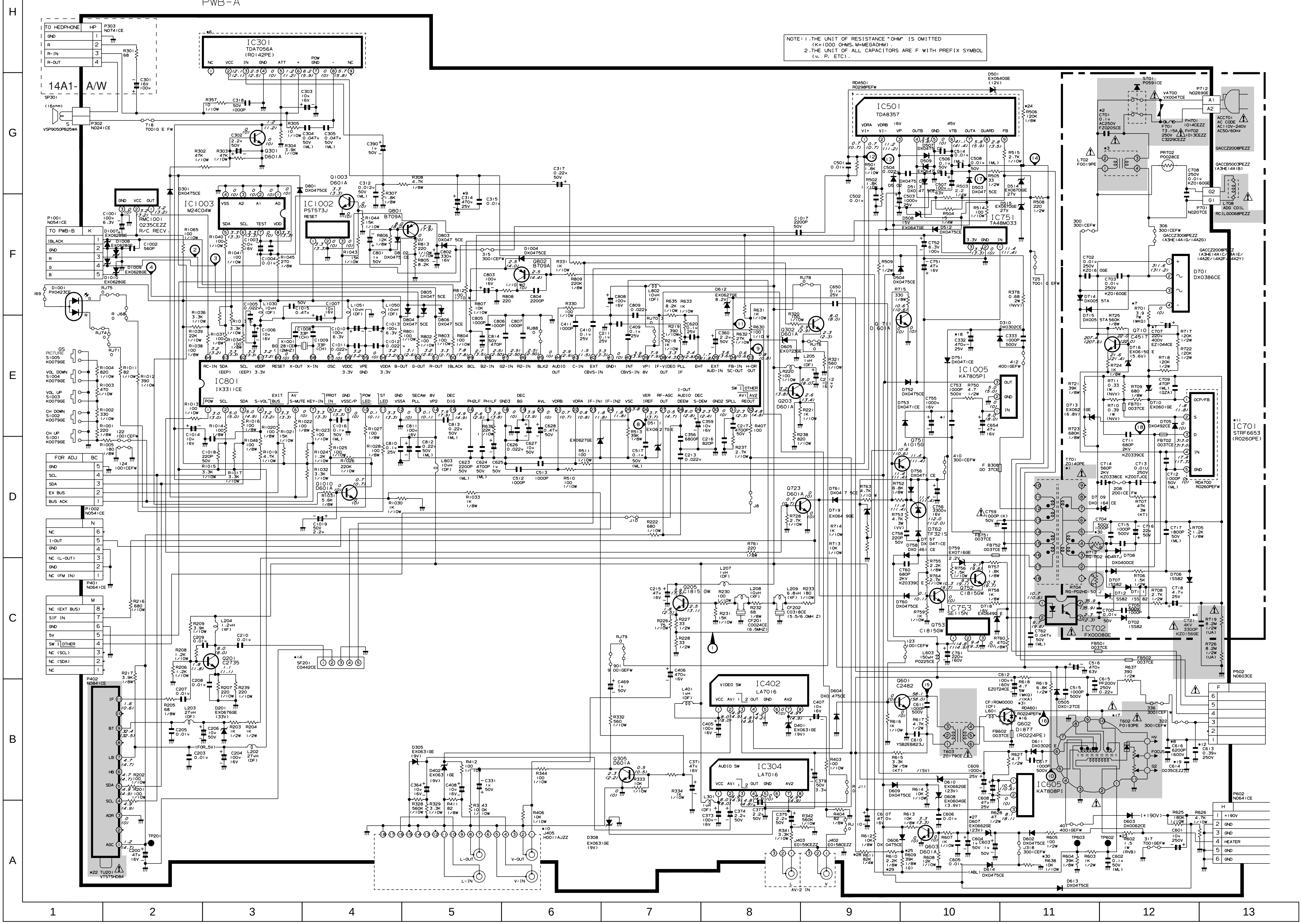
状态：

使用宾馆模式时，用户可控制“对比度”、“亮度”、“鲜明度”和“色调”功能。但关闭电源后，将会返回初始设置。
您无法使用:--
预置模式
微调
跳跃模式
制式选择
其它功能允许使用。

14A1-W/A/S,14AG1-M/S
14A2-A/S,14AG2-M/S

SCHEMATIC DIAGRAM: MODEL 14A1, 14AG1 MAIN Unit
电路原理图：14A1、14AG1型主电路装置

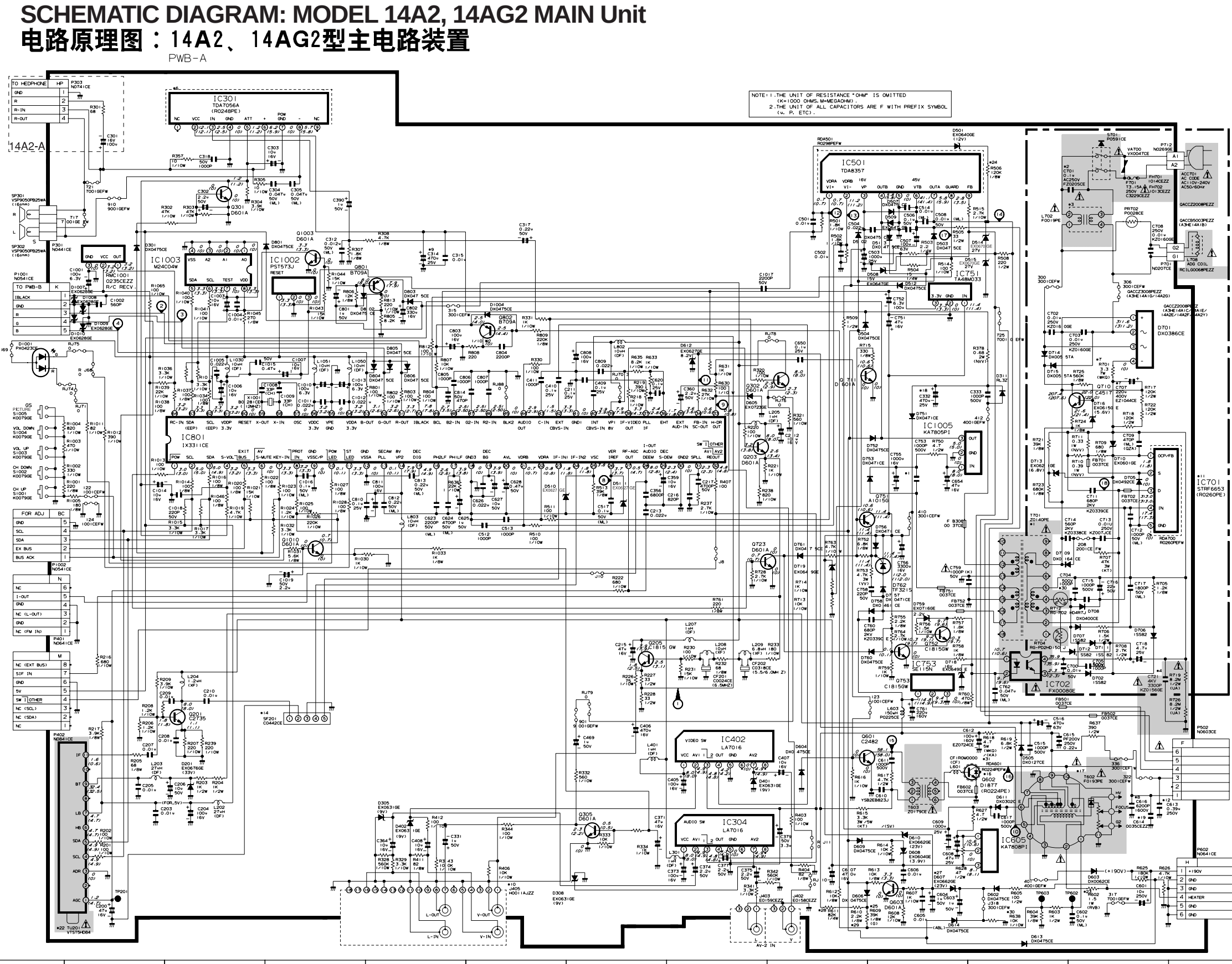
PWB-A


NOTE: 1.THE UNIT OF RESISTANCE "OHM" IS OMITTED
(K=1000 OHMS, M=MEGAOHM).
2.THE UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL
(u, P, ETC).
IC301 TDA7056A (R0142PE)
IC501 TDA8357
IC751 TA48M033
IC801 IX3311CE
IC1002 PST573J
IC1003 M24C04W
IC1005 KA7805PI
IC402 LA7016 VIDEO SW
IC304 LA7016 AUDIO SW
IC605 KA7808PI
IC701 STRF6653 (R0260PE)
IC702 FX0008GE
IC753 SE115N
T602 F0193PE
T603 Z0179CE
T701 Z0140PE
TU201 VTST5HD84
14A1- A/W
TO HEDPHONE
TO PWB-B
FOR ADJ
AC CODE AC110V-240V AC50/60Hz
L708 ADG COIL
L-OUT
V-OUT
L-IN
V-IN
AV-2 IN
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13

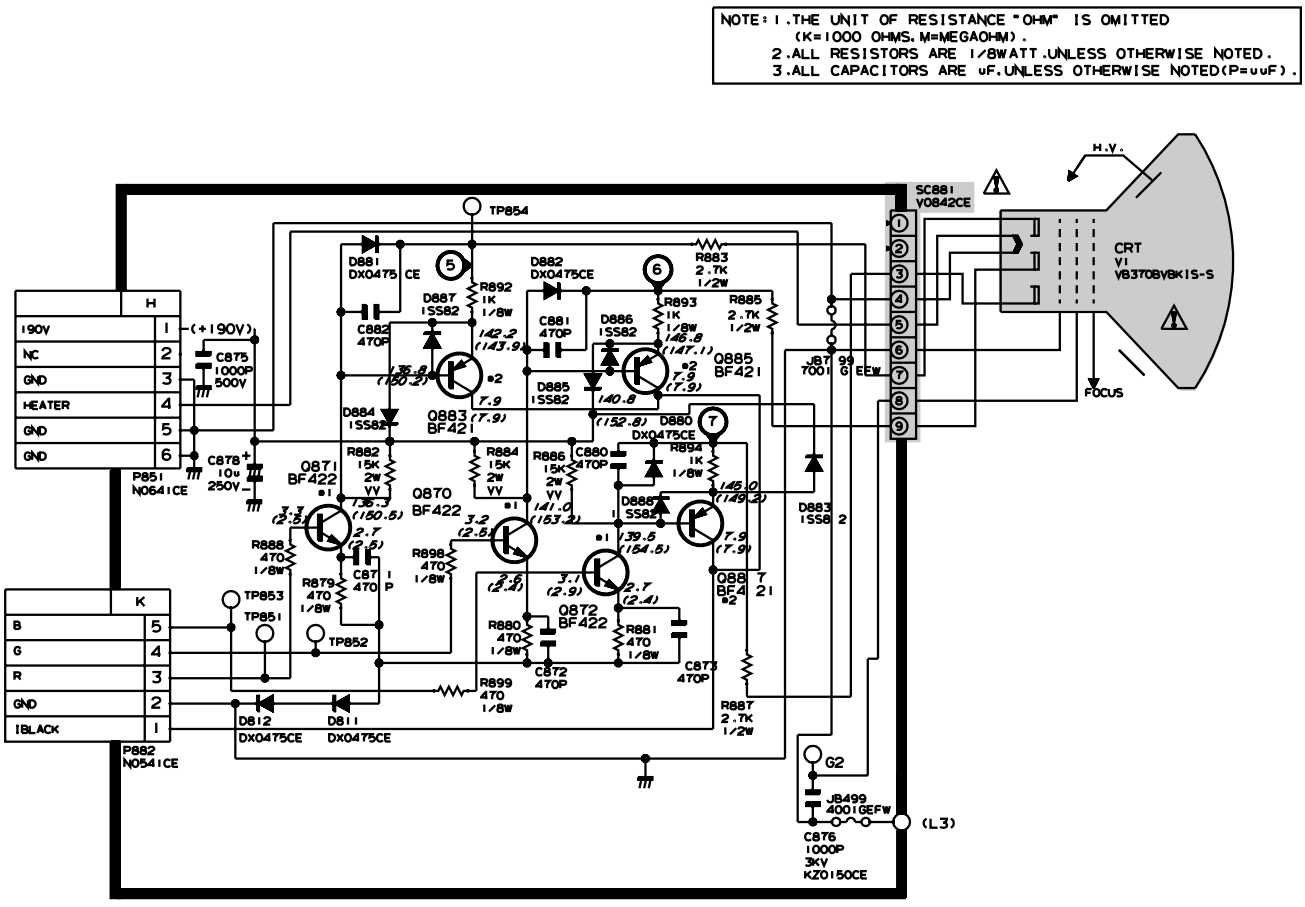
14A1-W/A/S,14AG1-M/S
14A2-A/S,14AG2-M/S

SCHEMATIC DIAGRAM: MODEL 14A2, 14AG2 MAIN Unit
电路原理图：14A2、14AG2型主电路装置

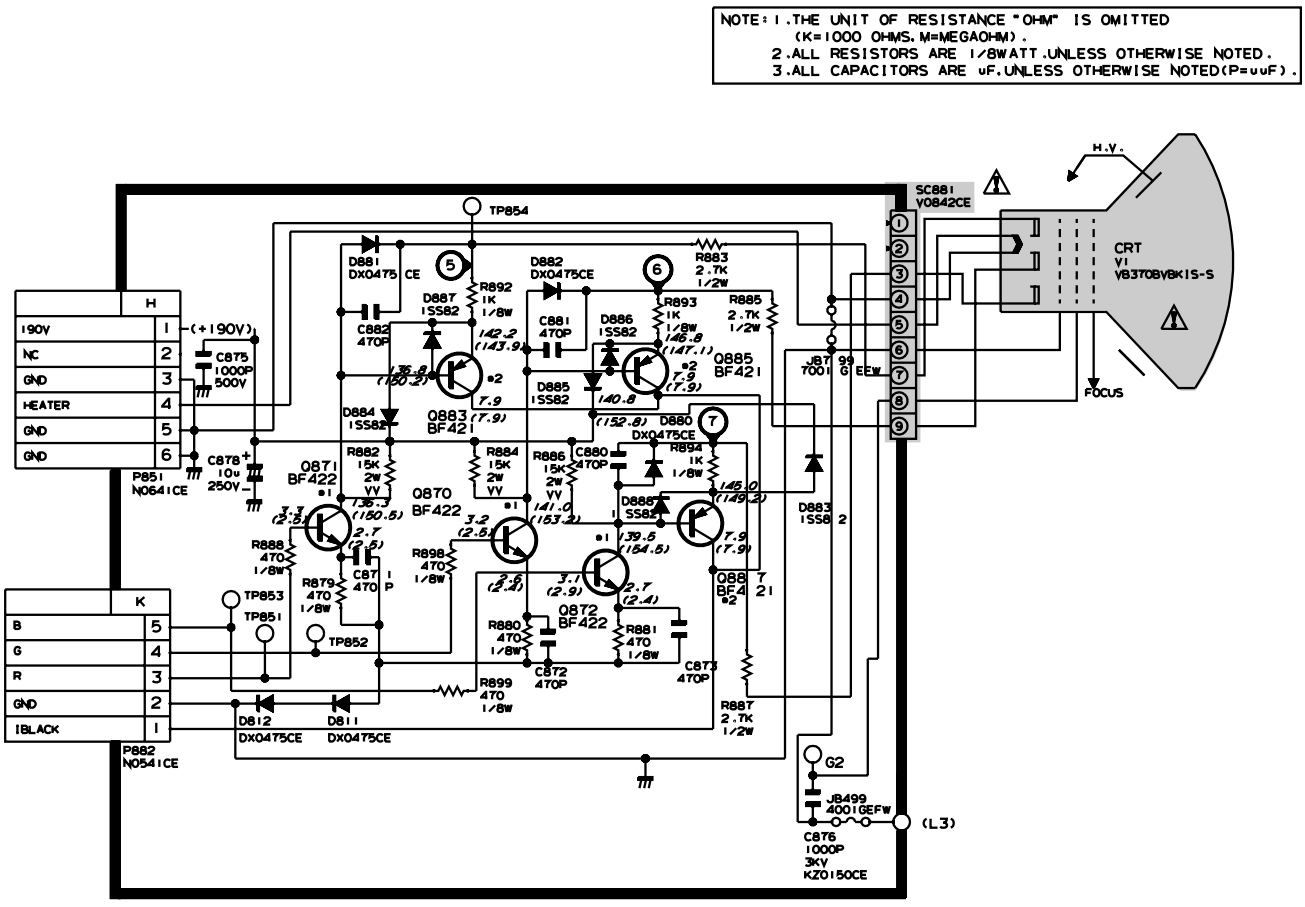
PWB-A



SCHEMATIC DIAGRAM: CRT Socket Unit
电路原理图：CRT管座装置

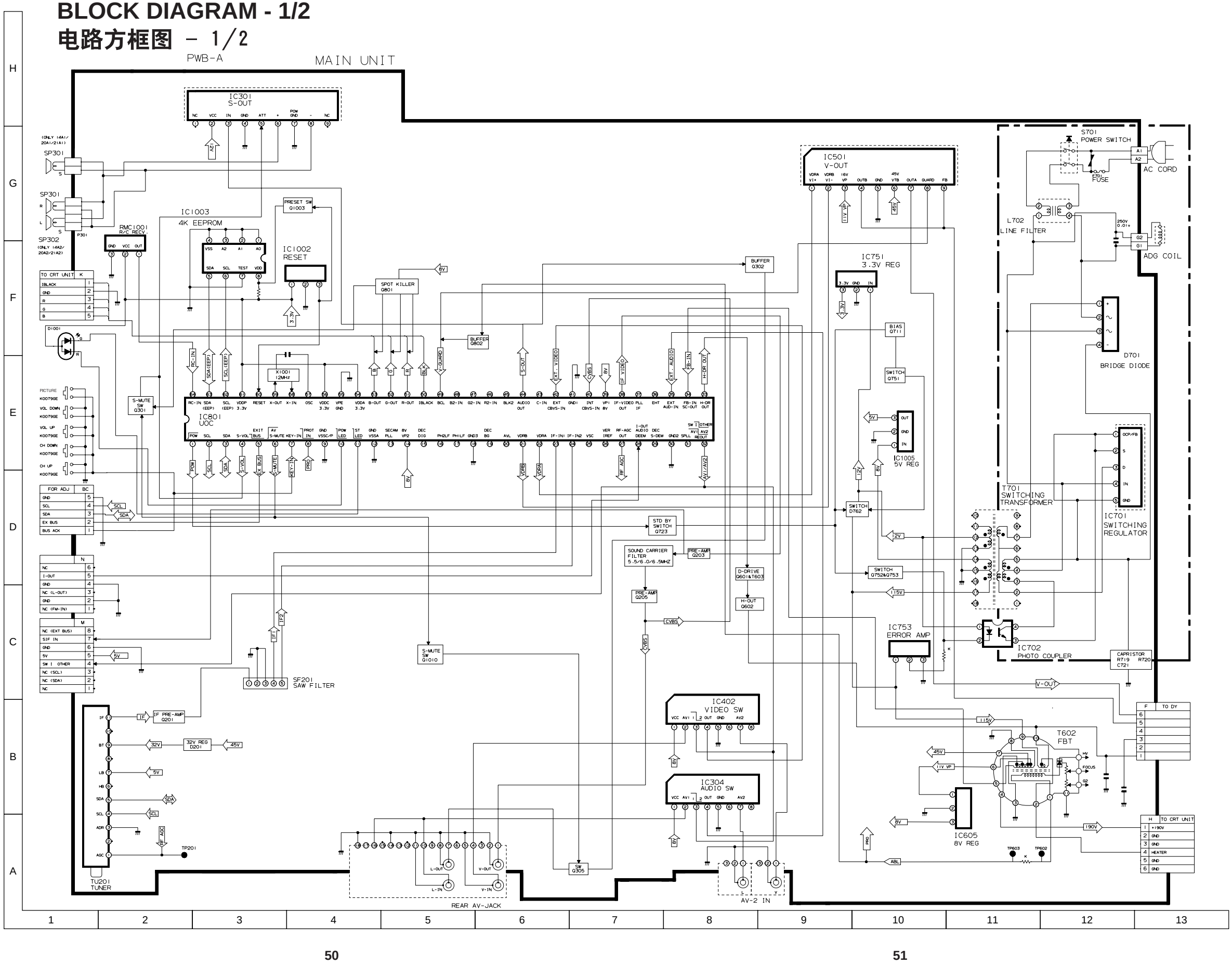


SCHEMATIC DIAGRAM: CRT Socket Unit
电路原理图：CRT管座装置



14A1-W/A/S,14AG1-M/S
14A2-A/S,14AG2-M/S

BLOCK DIAGRAM - 1/2
电路方框图 – 1/2



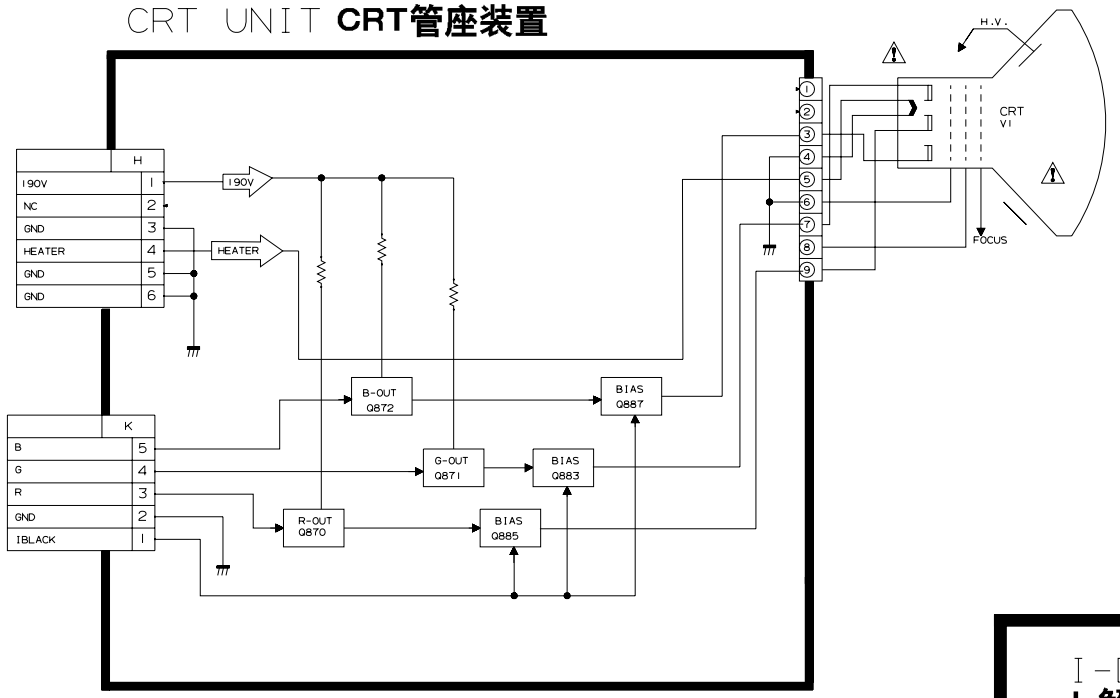
14A1-W/A/S,14AG1-M/S
14A2-A/S,14AG2-M/S

BLOCK DIAGRAM - 2/2
电路方框图 - 2/2

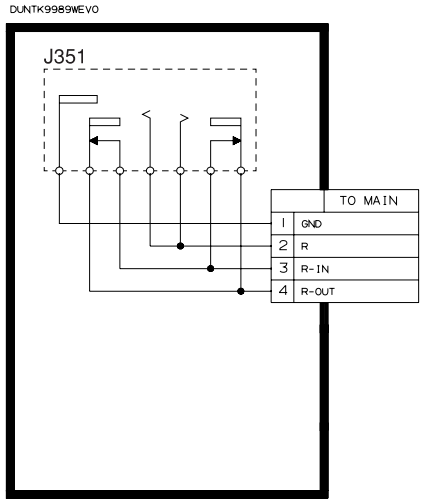
14A1/14A2

NOTE: 1.THE UNIT OF RESISTANCE "OHM" IS OMITTED
(K=1000 OHMS, M=MEGAOHM).
2.ALL RESISTORS ARE 1/8WATT.UNLESS OTHERWISE NOTED.
3.ALL CAPACITORS ARE uF.UNLESS OTHERWISE NOTED(P=uuF).

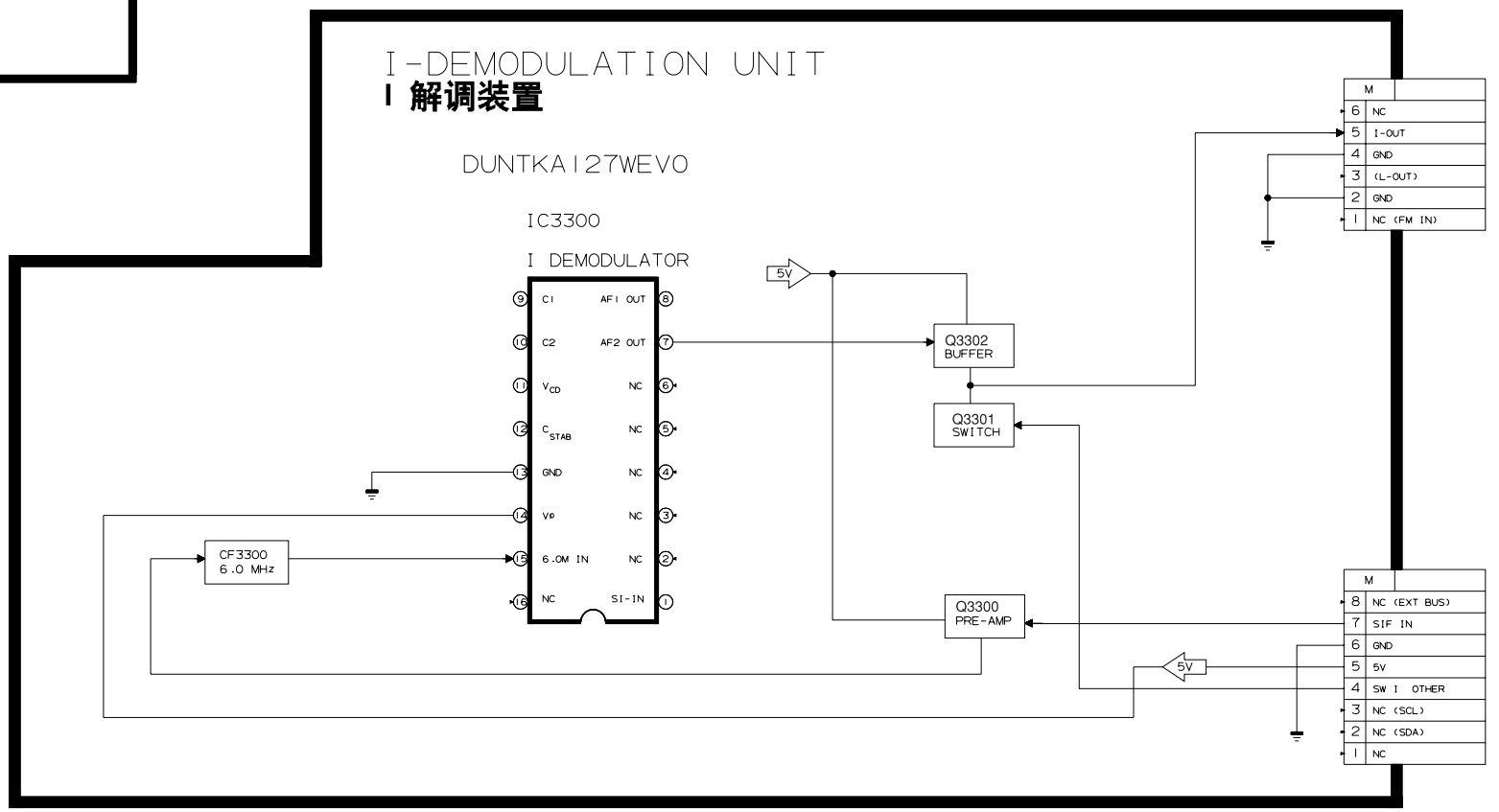
CRT UNIT CRT管座装置



HEADPHONE UNIT 耳机装置

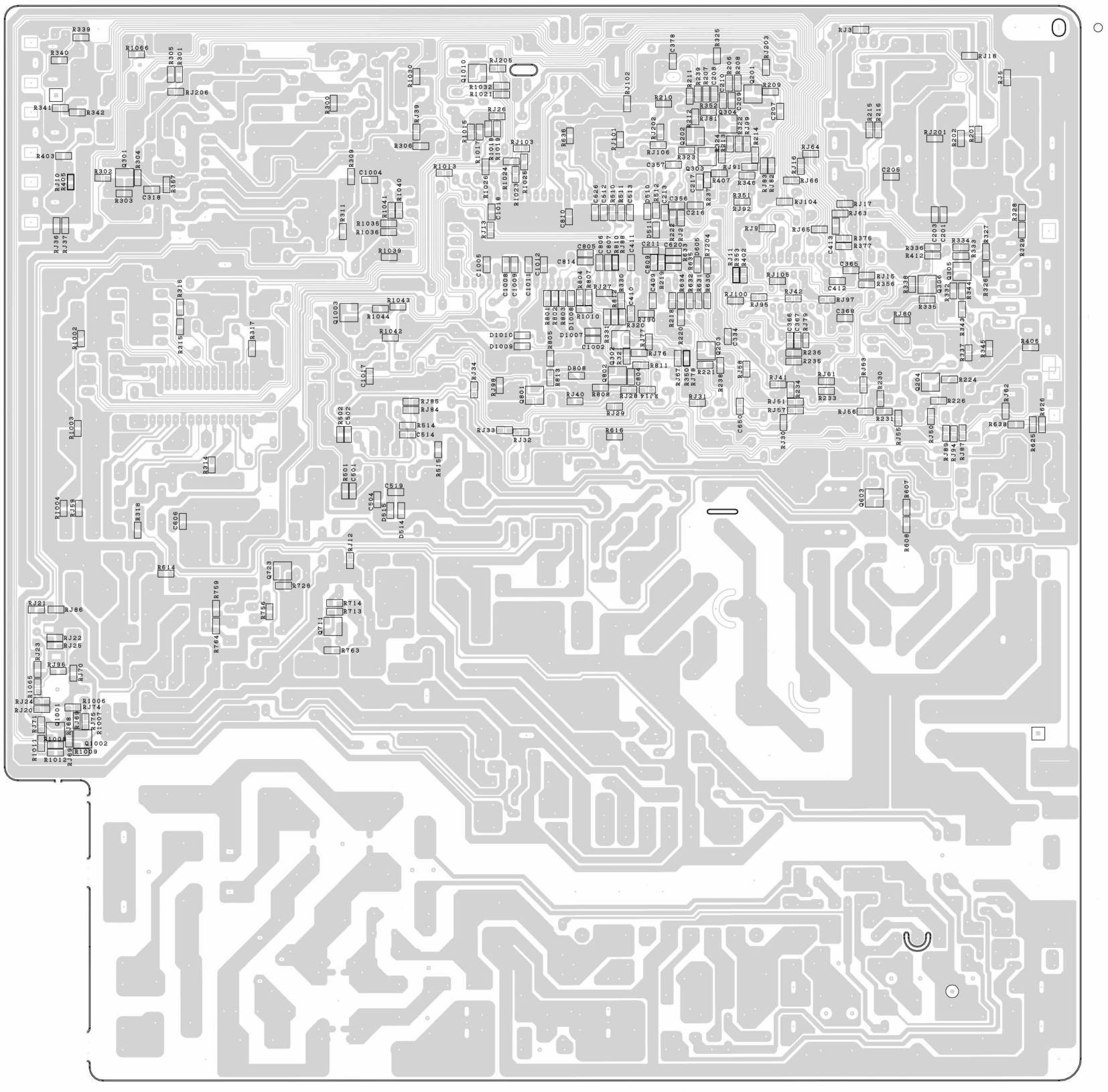


I-DEMODULATION UNIT
I 解调装置



14A1-W/A/S,14AG1-M/S
14A2-A/S,14AG2-M/S

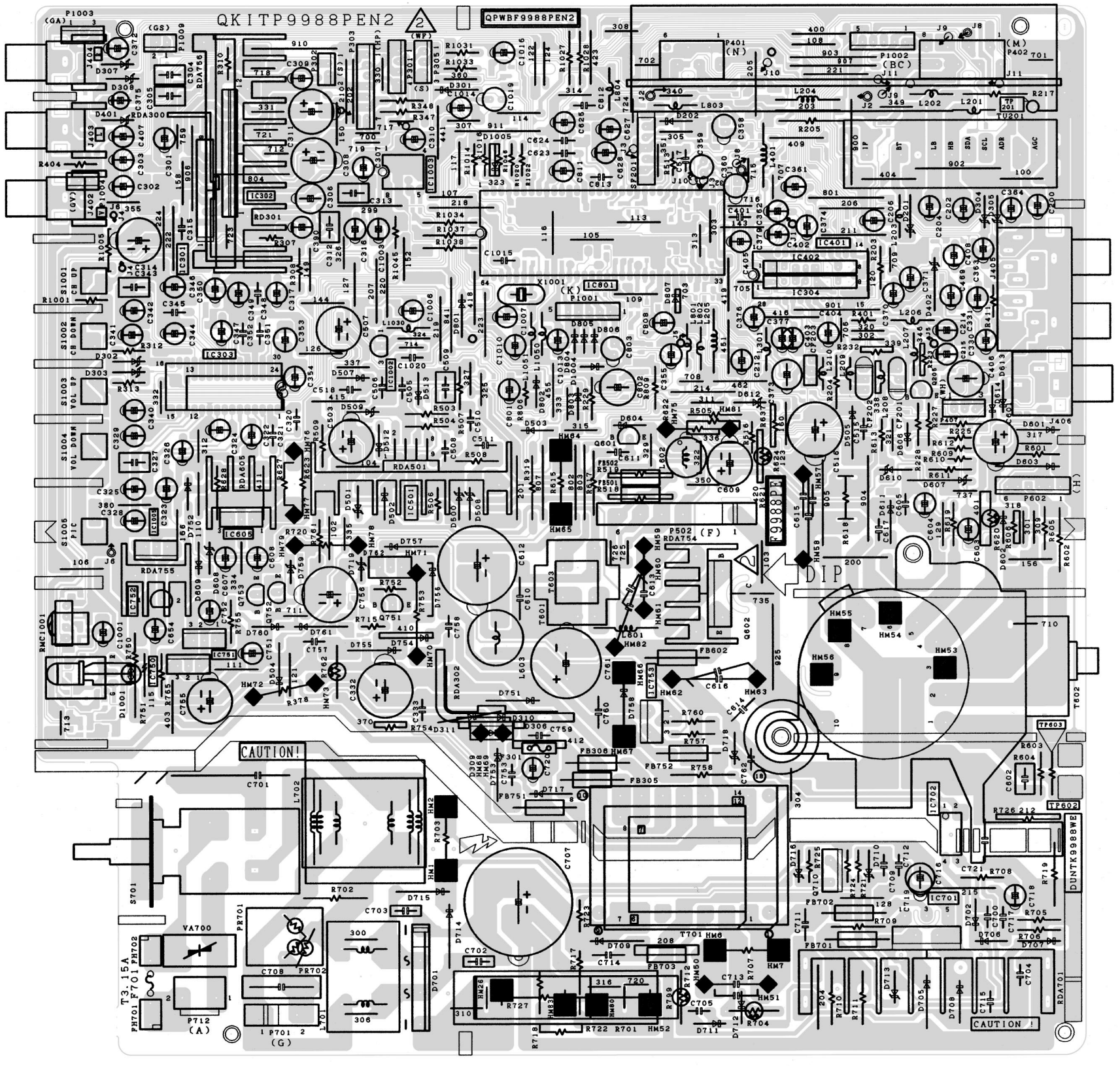
PWB-A: MAIN Unit (Wiring Side)
主电路装置（线路贴置侧）



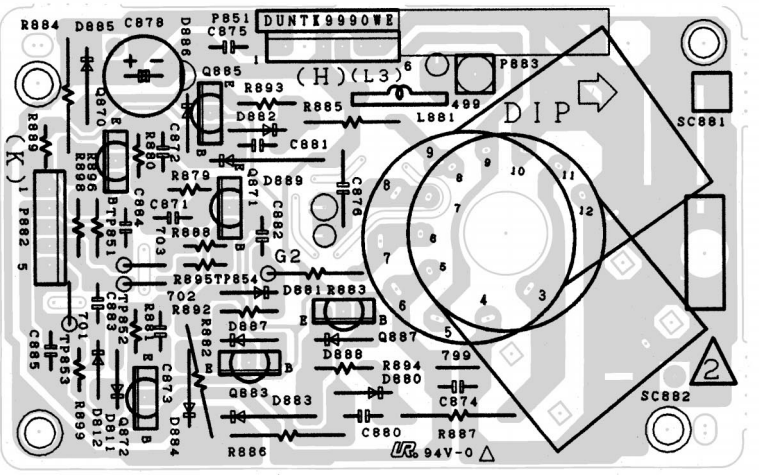
14A1-W/A/S,14AG1-M/S
14A2-A/S,14AG2-M/S

PWB-A: MAIN Unit (Component Side)

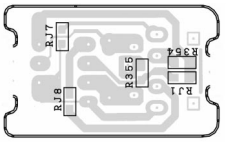
主电路装置（元件面）



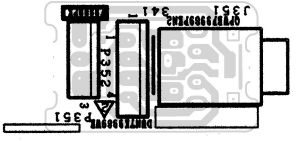
PWB-B: CRT Socket Unit (Wiring Side)
PWB–B：CRT管座装置（接线端）



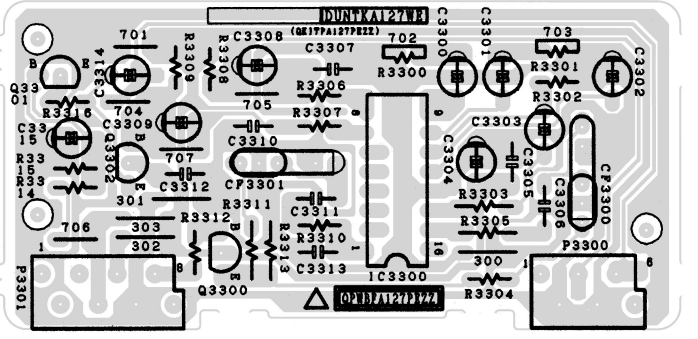
PWB-C: HEAD PHOME Unit (Wiring Side)
PWB–C：耳机装置（接线端）



(Component Side)
（元件面）



PWB-D: I DEMODULATION Unit (Wiring Side)
PWB–D：I 解调装置（接线端）



PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. **MODEL NUMBER**
2. **REF. NO.**
3. **PART NO.**
4. **DESCRIPTION**

更换零件表

更换零件

本维修手册对具有特别安全要求的零件均用标记加以识别：
在此更换零件表中，具有特别安全要求的电路元件均用“⚠”标记，以便注意识别。更换零件时，为了用户的安全以及电视机原有的工作性能，务请使用夏普规定零件。否则，可能有导致触电、火灾或其它不测事故发生的可能。

更换零件的订货方法

为了能迅速而确实地接受订货、以及正确无误地按时交货，在订货时请将下列各项明确告知。

1.型号　2.参考编号
3.零件编号　4.零件名称

MARK ★ : SPARE PARTS-DELIVERY SECTION.　附★记号为备用部件地交货部门

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

⚠	VB370BVBK1S-S	R	Picture Tube	BZ
⚠	RCiLG0068PEZZ	R	Degaussing Coil	AH
⚠	RCiLH0140PEZZ	R	Deflection Yoke	BC
	PMAGF3006CEZZ	R	Magnet	AK
	QEARC1422PEZZ	R	Grounding Strap	AD
	LHLDW0003PEKZ	R	ADG Coil Holder, x4	AB
	MSPRT0001PEFJ	R	Spring, Grounding Strap	AC
	PSPAG0004PEZZ	R	Wedge(Gum), x3	AB

PRINTED WIRING BOARD ASSEMBLY (NOT REPLACEMENT ITEM)

PWB-A	DUNTK9988WEV2	-	Main Unit(14A1-A)	—
PWB-A	DUNTK9988WEV0	-	Main Unit(14A1-S,14AG1-M)	—
PWB-A	DUNTK9988WEV1	-	Main Unit(14A1-W)	—
PWB-A	DUNTK9988WEV5	-	Main Unit(14A2-A)	—
PWB-A	DUNTK9988WEV6	-	Main Unit (14A2-S,14AG2-M/S(Y))	—
PWB-A	DUNTK9988WEV7	-	Main Unit(14AG1-S)	—
PWB-A	DUNTK9988WEV3	-	Main Unit(14AG2-S(G))	—
PWB-B	DUNTK9990WEV2	-	CRT Socket Unit (14A1-A,14A2-A)	—
PWB-B	DUNTK9990WEV0	-	CRT Socket Unit (14A1-S,14AG1-M,14A2-S, 14AG2-M/S(Y))	—
PWB-B	DUNTK9990WEV1	-	CRT Socket Unit(14A1-W)	—
PWB-B	DUNTK9990WEV3	-	CRT Socket Unit (14AG1-S,14AG2-S(G))	—
PWB-C	DUNTK9989WEV0	-	Head Phone Unit (14A1-A/W,14A2-A)	—
PWB-D	DUNTKA127WEV0	-	I Demodulation Unit	—

Ref. No.	Part No.	★	Description	Code
PWB-A	**DUNTK9988WEV0/V1/V2V3/V5/V6/V7 MAIN UNIT**			

TUNER AND ASSEMBLY

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT INDEPENDENTLY.

⚠	TU201	VTUVTST5HD84/	R	VHF Tuner	BB

INTEGRATED CIRCUITS

IC301	VHiTDA7056A-1	R	TDA7056A	AP
IC304	VHiLA7016//-1	R	LA7016	AH
IC402	VHiLA7016//-1	R	LA7016	AH
IC501	VHiTDA8357/-1	R	I.C.	AN
⚠ IC605	VHiKA7808Pi-1	R	KIA7808PI	AF
IC701	VHiSTRF6653-1	R	I.C.	AS
IC751	VHiTA48M033-1	R	TA48M033F	AH
IC753	VHiSE115N//-1	R	SE115N	AF
IC801	RH-iX3311CEN0	R	I.C.	BE
IC1002	VHiPST573J/-1	R	I.C.	AE
IC1003	VHiM24C04W/-1	R	I.C.	AG
IC1005	VHiKA7805Pi-1	R	KIA7805PI	AE

TRANSISTORS

Q201	VS2SC2735//1E	R	2SC2735	AC
Q203	VS2SD601A//-1	R	2SD601A	AC
Q205	VS2SC1815GW-1	R	2SC1815GW	AB
Q301	VS2SD601A//-1	R	2SD601A	AC
Q302	VS2SD601A//-1	R	2SD601A	AC
Q305	VS2SD601A//-1	R	2SD601A	AC
Q601	VS2SC2482//-1	R	2SC2482	AD
Q602	VS2SD1877//1E	R	2SD1877	AL
Q603	VS2SD601A//-1	R	2SD601A	AC
Q710	VS2SC4517//-1	R	2SC4517	AG
Q711	VS2SD601A//-1	R	2SD601A	AC
Q723	VS2SD601A//-1	R	2SD601A	AC
Q751	VS2SA1015G/1E	R	2SA1015G	AC
Q752	VS2SC1815GW-1	R	2SC1815GW	AB
Q753	VS2SC1815GW-1	R	2SC1815GW	AB
Q801	VS2SB709A//-1	R	2SB709A	AA
Q802	VS2SB709A//-1	R	2SB709A	AA
Q1003	VS2SD601A//-1	R	2SD601A	AC
Q1010	VS2SD601A//-1	R	2SD601A	AC

DIODES

Ref. No.	Part No.	★	Description	Code
D201	RH-EX0676GEZZ	J	Zener Diode	AA
D301	RH-DX0475CEZZ	R	Diode	AB
D305	RH-EX0631GEZZ	J	Zener Diode	AA
D308	RH-EX0631GEZZ	J	Zener Diode	AA
D310	RH-DX0302CEZZ	R	Diode(14A1)	AC
D311	VHDRL3Z////-1	R	RL3Z(14A2)	AE
D401	RH-EX0631GEZZ	J	Zener Diode	AA
D402	RH-EX0631GEZZ	J	Zener Diode	AA
D501	RH-EX0640GEZZ	J	Zener Diode	AA
D502	RH-DX0475CEZZ	R	Diode	AB
D503	RH-DX0475CEZZ	R	Diode	AB
D504	RH-DX0475CEZZ	R	Diode	AB
D505	RH-DX0127CEZZ	R	Diode	AC
D507	RH-DX0475CEZZ	R	Diode	AB
D508	RH-EX0647GEZZ	J	Zener Diode	AA
D509	RH-EX0647GEZZ	J	Zener Diode	AA
D510	RH-EX0627GEZZ	J	Zener Diode	AA
D511	RH-EX0627GEZZ	J	Zener Diode	AA
D512	RH-DX0475CEZZ	R	Diode	AB
D513	RH-DX0475CEZZ	R	Diode	AB
D514	RH-EX0670GEZZ	J	Zener Diode	AA
D515	RH-EX0670GEZZ	J	Zener Diode	AA
D602	RH-DX0475CEZZ	R	Diode	AB
D603	RH-DX0062CEZZ	R	Diode	AD
D604	RH-DX0475CEZZ	R	Diode	AB
D605	RH-EX0723GEZZ	J	Zener Diode	AB
D606	RH-DX0475CEZZ	R	Diode	AB
D607	RH-EX0662GEZZ	J	Zener Diode	AB
D608	RH-EX0604GEZZ	J	Zener Diode	AB
D609	RH-DX0475CEZZ	R	Diode	AB
D610	RH-EX0662GEZZ	J	Zener Diode	AB
D611	RH-DX0302CEZZ	R	Diode	AC
D612	RH-EX0627GEZZ	J	Zener Diode	AA
D613	RH-DX0475CEZZ	R	Diode	AB
D614	RH-DX0475CEZZ	R	Diode	AB
D701	RH-DX0386CEZZ	R	Diode	AG
D702	VHD1SS82///1A	R	1SS82	AC
D705	RH-DX0492CEZZ	R	Diode	AE
D706	VHD1SS82///1A	R	1SS82	AC
D707	VHD1SS82///1A	R	1SS82	AC
D708	RH-DX0400CEZZ	R	Diode	AC
D709	RH-DX0164CEZZ	R	Diode	AC
D710	RH-EX0601GEZZ	J	Zener Diode	AA
D711	VHD1SS82///1A	R	1SS82	AC
D712	VHD1SS82///1A	R	1SS82	AC
D713	RH-EX0621GEZZ	J	Zener Diode	AB
D714	RH-DX0055TAZZ	R	Diode	AD
D715	RH-DX0055TAZZ	R	Diode	AD
D716	RH-EX0615GEZZ	J	Zener Diode	AA
D718	RH-EX0649GEZZ	J	Zener Diode	AB
D719	RH-EX0649GEZZ	J	Zener Diode	AB
D751	RH-DX0471CEZZ	R	Diode	AE
D752	RH-DX0475CEZZ	R	Diode	AB
D753	RH-DX0471CEZZ	R	Diode	AE
D756	RH-DX0471CEZZ	R	Diode	AE
D757	RH-DX0471CEZZ	R	Diode	AE
D758	RH-DX0461CEZZ	R	Diode	AG
D759	RH-EX0716GEZZ	J	Zener Diode	AB
D760	RH-DX0475CEZZ	R	Diode	AB
D761	RH-DX0475CEZZ	R	Diode	AB
D762	VHDTF321S//-1	R	TF321S	AH
D801	RH-DX0475CEZZ	R	Diode	AB
D802	RH-DX0475CEZZ	R	Diode	AB
D803	RH-DX0475CEZZ	R	Diode	AB
D804	RH-DX0475CEZZ	R	Diode	AB
D805	RH-DX0475CEZZ	R	Diode	AB
D806	RH-DX0475CEZZ	R	Diode	AB
D1001	RH-PX0423CEZZ	R	Photo Diode	AD
D1004	RH-DX0475CEZZ	R	Diode	AB
D1007	RH-EX0628GEZZ	J	Zener Diode	AC
D1008	RH-EX0628GEZZ	J	Zener Diode	AC
D1009	RH-EX0628GEZZ	J	Zener Diode	AC
D1010	RH-EX0628GEZZ	J	Zener Diode	AC
IC702	RH-FX0008GEZZ	J	PC123FY8	AE

PACKAGED CIRCUITS

Ref. No.	Part No.	★	Description	Code
PR702	RMPTP0028CEZZ	R	Packaged Circuit	AG
VA700	RH-VX0047CEZZ	R	Varistor	AF
X1001	RCRSB0281CEZZ	R	Crystal	AG

COILS

Ref. No.	Part No.	★	Description		Code
L202	VP-DF270K0000	R	Peaking	27µH	AB
L203	VP-DF270K0000	R	Peaking	27µH	AB
L204	VP-XF1R2K0000	R	Peaking	1.2µH	AB
L205	VP-DF1R0K0000	R	Peaking	1µH	AB
L207	VP-DF1R0K0000	R	Peaking	1µH	AB
L301	VP-DF1R0K0000	R	Peaking	1µH	AB
L401	VP-DF1R0K0000	R	Peaking	1µH	AB
L208	VP-XF100K0000	R	Peaking	10µH	AB
L209	VP-XF6R8K0000	R	Peaking	6.8µH	AB
L601	VP-CF1R0M0000	R	Peaking	1µH	AB
L603	RCiLP0225CEZZ	R	Coil		AF
⚠ L702	RCiLF0019PEZZ	R	Coil		AN
L802	VP-DF100K0000	R	Peaking	10µH	AB
L803	VP-DF100K0000	R	Peaking	10µH	AB
L1030	VP-DF100K0000	R	Peaking	10µH	AB
L1050	VP-DF100K0000	R	Peaking	10µH	AB
L1051	VP-DF100K0000	R	Peaking	10µH	AB

FILTER

Ref. No.	Part No.	★	Description	Code
CF201	RFiLC0024CEZZ	R	Filter	AE
CF202	RFiLC0318CEZZ	R	Filter	AG
SF201	RFiLC0442CEZZ	R	Filter	AL

TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
⚠ T602	RTRNF0193PEZZ	R	H-Volt Transformer	AZ
⚠ T603	RTRNZ0179CEZZ	R	Transformer	AE
⚠ T701	RTRNZ0140PEZZ	R	H-Volt Transformer	AQ

CAPACITORS

Ref. No.	Part No.	★				Code
C200	VCEA0A1CW476M	R	47	16V	Electrolytic	AB
C203	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C204	VCEA0A1CW107M	R	100	16V	Electrolytic	AC
C205	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C206	VCEA0A1HW106M	R	10	50V	Electrolytic	AB
C207	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C208	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C209	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C210	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C211	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C212	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C213	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C215	VCEA0A1CW476M	R	47	16V	Electrolytic	AB
C216	VCKYCY1HB821K	R	820p	50V	Ceramic	AA
C217	VCKYCY1HB472K	R	4700p	50V	Ceramic	AA
C301	VCEA0A1CW107M	R	100 (14A1-A/W,14A2-A)	16V	Electrolytic	AC
C302	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C303	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C304	VCQYTA1HM473J	R	0.047	50V	Mylar	AA
C305	VCQYTA1HM473J	R	0.047	50V	Mylar	AA
C312	VCQYTA1HM123J	R	0.012	50V	Mylar	AA
C314	VCEA0A1EW477M	R	470	25V	Electrolytic	AD
C315	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C317	VCEA0A1HW224M	R	0.22	50V	Electrolytic	AB
C318	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C331	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C332	VCEA0A1EW477M	R	470	25V	Electrolytic	AD
C333	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C356	VCKYCY1HB682K	R	6800p	50V	Ceramic	AA
C359	VCEA9M1CW106M	R	10	16V	Electrolytic	AB
C360	VCEA9M1HW225M	R	2.2	50V	Electrolytic	AB
C364	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C371	VCEA0A1CW476M	R	47	16V	Electrolytic	AB
C373	VCEA0A1CW107M	R	100	16V	Electrolytic	AC
C374	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C375	VCEAEA1HW225M	R	2.2	50V	Electrolytic	AB
C377	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB

Ref. No.	Part No.	★			Description	Code
C379	VCEA0A1HW335M	R	3.3	50V	Electrolytic	AB
C390	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C405	VCEA0A1CW107M	R	100	16V	Electrolytic	AC
C406	VCEA0A1CW477M	R	470	16V	Electrolytic	AC
C407	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C408	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C409	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C410	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C411	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C469	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C501	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C502	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C503	VCEA0A1EW108M	R	1000	25V	Electrolytic	AD
C504	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C506	VCQYTA1HM104J	R	0.1	50V	Mylar	AA
C507	VCEA0A1JW107M	R	100	63V	Electrolytic	AC
C508	VCQYTA1HM103J	R	0.01	50V	Mylar	AA
C512	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C513	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C514	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C515	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C516	VCEA0A1JW477M	R	470	63V	Electrolytic	AE
C517	VCFYSA1HB104J	R	0.1	50V	Mylar	AB
C601	VCEAGA2EW106M	R	10	250V	Electrolytic	AC
C602	VCQYTA1HM104J	R	0.1	50V	Mylar	AA
C603	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C604	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C605	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C606	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C607	VCEA0A1CW477M	R	470	16V	Electrolytic	AC
C608	VCEA0A1EW476M	R	47	25V	Electrolytic	AB
C609	VCEA0A1EW108M	R	1000	25V	Electrolytic	AD
C610	VCFYSB2EB823J	R	0.082	250V	Mylar	AD
C611	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C612	RC-EZ0724CEZZ	R	100	160V	Electrolytic	AG
C613	VCFPPB2EB394J	R	0.39	250V	M.Polypro	AF
C614	RC-KZ0035CEZZ	R	220p	2kV	Ceramic	AB
C615	VCFPPB2EB224J	R	0.22	250V	M.Polypro	AD
C616	VCFPPD3CA622H	R	6200p	1600V	M.Polypro	AE
C617	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C620	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C623	VCQYTA1HM222J	R	2200p	50V	Mylar	AA
C624	VCQYTA1HM472J	R	4700p	50V	Mylar	AB
C625	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C626	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C627	VCEA0A1HW106M	R	10	50V	Electrolytic	AB
C628	VCEA0A1HW474M	R	0.47	50V	Electrolytic	AB
C650	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C654	VCEA0A1CW476M	R	47	16V	Electrolytic	AB
C700	VCQYTA1HM103J	R	0.01	50V	Mylar	AA
⚠ C701	RC-FZ031SCEZZ	R	0.1	AC250V	Electrolytic	AD
C702	RC-KZ0160GEZZ	R	0.01	250V	Ceramic	AC
C703	RC-KZ0160GEZZ	R	0.01	250V	Ceramic	AC
C704	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C705	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C707	RC-EZ1044CEZZ	R	220	400V	Electrolytic	AM
C708	RC-KZ0160GEZZ	R	0.01	250V	Ceramic	AC
C709	RC-QZA471TAYJ	R	470p	50V	Mylar	AB
C711	RC-KZ0339CEZZ	R	680p	2kV	Ceramic	AD
C712	VCQYTA1HM102J	R	1000p	50V	Mylar	AA
C713	RC-KZ007JCEZZ	R	0.01	250V	Ceramic	AC
C714	RC-KZ0338CEZZ	R	560p	2kV	Ceramic	AD
C715	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C716	VCEA0A1HW226M	R	22	50V	Electrolytic	AB
C717	VCQYTA1HM182J	R	1800p	50V	Mylar	AA
C718	VCEA0A1EW475M	R	4.7	25V	Electrolytic	AB
⚠ C721	RC-KZ0102GEZZ	R	680p	250V	Ceramic	AE
C751	VCEA0A1CW476M	R	47	16V	Electrolytic	AB
C752	VCEA0A0JW107M	R	100	6.3V	Electrolytic	AB
C753	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C755	VCEA0A1CW108M	R	1000	16V	Electrolytic	AD
C756	VCEA0A1CW338M	R	3300	16V	Electrolytic	AE
C758	VCKYPA1HB221K	R	220p	50V	Ceramic	AA
⚠ C759	VCKYPA1HB102K	R	1000p	50V	Ceramic	AA
C760	RC-KZ0339CEZZ	R	680p	2kV	Ceramic	AD
C761	VCEA4W2CN227M	R	220	160V	Electrolytic	AG

Ref. No.	Part No.	★			Description	Code
C762	VCQYTA1HM473J	R	0.047	50V	Mylar	AA
C801	VCEA0A1HW105M	R	1	50V	Electrolytic	AB
C802	VCEA0A1CW337M	R	330	16V	Electrolytic	AC
C803	VCEA9M1CW107M	R	100	16V	Electrolytic	AB
C804	VCKYCY1HB222K	R	2200p	50V	Ceramic	AA
C805	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C806	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C807	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C808	VCEA0A1CW107M	R	100	16V	Electrolytic	AC
C809	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C810	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C811	VCEA0A1CW107M	R	100	16V	Electrolytic	AC
C812	VCFYSA1HB224J	R	0.22	50V	Mylar	AB
C813	VCFYSA1HB224J	R	0.22	50V	Mylar	AB
C814	VCKYCY1HB471K	R	470p	50V	Ceramic	AA
C1001	VCEA0A0JW107M	R	100	6.3V	Electrolytic	AB
C1002	VCKYCY1HB561K	R	560p	50V	Ceramic	AA
C1003	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C1004	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1005	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C1006	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C1007	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C1008	VCCCCY1HH330J	R	33p	50V	Ceramic	AA
C1009	VCCCCY1HH330J	R	33p	50V	Ceramic	AA
C1010	VCEA0A0JW107M	R	100	6.3V	Electrolytic	AB
C1011	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C1012	VCKYCY1HF223Z	R	0.022	50V	Ceramic	AB
C1013	VCEA0A0JW107M	R	100	6.3V	Electrolytic	AB
C1014	VCEA0A1CW106M	R	10	16V	Electrolytic	AB
C1015	VCFYSA1HB474J	R	0.47	50V	Mylar	AC
C1016	VCQYTA1HM104J	R	0.1	50V	Mylar	AA
C1017	VCKYCY1HB222K	R	2200p	50V	Ceramic	AA
C1018	VCKYCY1HB221K	R	220p	50V	Ceramic	AA
C1019	VCEA9M1HW225M	R	2.2	50V	Electrolytic	AB

RESISTORS

RJ2	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ5	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ9	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ10	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ11	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ12	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ13	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ14	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ15	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ16	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ21	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ25	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ26	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ27	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ28	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ29	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ30	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ31	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ32	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ33	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ34	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ40	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ41	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ51	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ53	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ55	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ64	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ66	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ68	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ69	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ71	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ74	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ75	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ76	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ78	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ79	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ80	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ84	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ85	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ87	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA

Ref. No.	Part No.	★	Description	Code
RJ88	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ89	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ92	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ94	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ95	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ96	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ97	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ105	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ201	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ202	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ204	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
RJ205	VRN-MD2AL000J	R	00 1/10W Metal Film	AA
R201	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R202	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R203	VRD-RM2HD102J	R	1k 1/2W Carbon	AA
R204	VRD-RM2HD102J	R	1k 1/2W Carbon	AA
R205	VRD-RA2BE680J	R	68 1/8W Carbon	AA
R206	VRN-MD2AL122J	R	1.2k 1/10W Metal Film	AA
R207	VRN-MD2AL221J	R	220 1/10W Metal Film	AA
R208	VRN-MD2AL122J	R	1.2k 1/10W Metal Film	AA
R209	VRN-MD2AL392J	R	3.9k 1/10W Metal Film	AA
R216	VRN-MD2AL681J	R	680 1/10W Metal Film	AA
R217	VRD-RA2BE392J	R	3.9k 1/8W Carbon	AA
R218	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R219	VRN-MD2AL391J	R	390 1/10W Metal Film	AA
R220	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R221	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R222	VRN-MD2AL681J	R	680 1/10W Metal Film	AA
R226	VRN-MD2AL750J	R	75 1/10W Metal Film	AA
R227	VRD-RM2HD330J	R	33 1/2W Carbon	AA
R228	VRD-RM2HD330J	R	33 1/2W Carbon	AA
R230	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R231	VRN-MD2AL153J	R	15k 1/10W Metal Film	AA
R232	VRD-RA2BE680J	R	68 1/8W Carbon	AA
R233	VRN-MD2AL181J	R	180 1/10W Metal Film	AA
R237	VRN-MD2AL272J	R	2.7k 1/10W Metal Film	AA
R238	VRN-MD2AL821J	R	820 1/10W Metal Film	AA
R239	VRN-MD2AL221J	R	220 1/10W Metal Film	AA
R301	VRN-MD2AL680J	R	68 1/10W Metal Film (14A1-A/W,14A2-A)	AA
R302	VRN-MD2AL473J	R	47k 1/10W Metal Film	AA
R303	VRN-MD2AL473J	R	47k 1/10W Metal Film	AA
R304	VRN-MD2AL392J	R	3.9k 1/10W Metal Film	AA
R305	VRN-MD2AL100J	R	10 1/10W Metal Film	AA
R307	VRD-RA2BE182J	R	1.8k 1/8W Carbon	AA
R308	VRD-RA2BE472J	R	4.7k 1/8W Carbon	AA
R320	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R321	VRN-MD2AL561J	R	560 1/10W Metal Film	AA
R328	VRN-MD2AL564J	R	560k 1/10W Metal Film	AA
R329	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R330	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R331	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R332	VRN-MD2AL561J	R	560 1/10W Metal Film	AA
R333	VRN-MD2AL103J	R	10k 1/10W Metal Film	AA
R334	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R341	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R342	VRN-MD2AL564J	R	560k 1/10W Metal Film	AA
R343	VRN-MD2AL104J	R	100k 1/10W Metal Film	AA
R344	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R357	VRN-MD2AL100J	R	10 1/10W Metal Film	AA
R378	VRN-VV3DBR68J	R	0.68 2W Metal Film	AA
R403	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R404	VRD-RA2BE820J	R	82 1/8W Carbon	AA
R406	VRN-MD2AL103J	R	10k 1/10W Metal Film	AA
R407	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R411	VRD-RA2BE820J	R	82 1/8W Carbon	AA
R412	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R501	VRN-MD2AL182J	R	1.8k 1/10W Metal Film	AA
R502	VRN-MD2AL182J	R	1.8k 1/10W Metal Film	AA
R503	VRD-RA2EE2R2J	R	2.2 1/4W Carbon	AA
R504	VRD-RA2EE150J	R	15 1/4W Carbon	AA
R505	VRD-RM2HD330J	R	33 1/2W Carbon	AA
R506	VRD-RA2BE124J	R	120k 1/8W Carbon	AA
R508	VRD-RM2HD221J	R	220 1/2W Carbon	AA
R509	VRD-RM2HD1R0J	R	1 1/2W Carbon	AA
R510	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R511	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R513	VRD-RA2BE393J	R	39k 1/8W Carbon	AA
R514	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R515	VRN-MD2AL272J	R	2.7k 1/10W Metal Film	AA
R602	VRN-VV3AB1R5J	R	1.5 1W Metal Film	AA
R603	VRD-RM2HD102J	R	1k 1/2W Carbon	AA
R604	VRD-RA2BE393J	R	39k 1/8W Carbon	AA
R605	VRD-RM2HD101J	R	100 1/2W Carbon	AA
R607	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R608	VRN-MD2AL123J	R	12k 1/10W Metal Film	AA
R609	VRD-RA2BE393G	R	39k 1/8W Carbon	AA
R610	VRD-RA2BE222J	R	2.2k 1/8W Carbon	AA
R611	VRD-RA2EE823G	R	82k 1/4W Carbon	AA
R612	VRD-RA2BE103J	R	10k 1/8W Carbon	AA
R613	VRD-RA2BE103J	R	10k 1/8W Carbon	AA
R614	VRN-MD2AL103J	R	10k 1/10W Metal Film	AA
R615	VRS-KT3LB332J	R	3.3k 3.0W Metal Oxide	AC
R616	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R617	VRD-RM2HD472J	R	4.7k 1/2W Carbon	AA
R618	VRS-KA3HG4R7K	R	4.7 5W Metal Oxide	AD
R619	VRD-RM2HD682J	R	6.8k 1/2W Carbon	AA
R625	VRN-MD2AL184J	R	180k 1/10W Metal Film	AA
R626	VRN-MD2AL472J	R	4.7k 1/10W Metal Film	AA
R627	VRD-RM2HD4R7J	R	4.7 1/2W Carbon	AA
R628	VRD-RM2HD470J	R	47 1/2W Carbon	AA
R630	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R631	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R632	VRN-MD2AL273J	R	27k 1/10W Metal Film	AA
R633	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R635	VRN-MD2AL822J	R	8.2k 1/10W Metal Film	AA
R636	VRN-MD2AL223J	R	22k 1/10W Metal Film	AA
R637	VRD-RM2HD391J	R	390 1/2W Carbon	AA
R638	VRN-MD2AL333J	R	33k 1/10W Metal Film	AA
R701	VRW-KQ3NC3R9K	R	3.9 7.0W Cement (14A1, 14AG1)	AE
R701	VRW-KQ3NC3R3K	R	3.3 7.0W Cement (14A2, 14AG2)	AE
⚠ R704	VRG-PD2HD150J	R	15 1/2W Fuse Resistor	AC
R705	VRD-RA2BE122J	R	1.2k 1/8W Carbon	AA
R706	VRD-RM2HD152J	R	1.5k 1/2W Carbon	AA
R707	VRS-KT3LB473J	R	47k 3.0W Metal Oxide	AE
R708	VRD-RM2HD272J	R	2.7k 1/2W Carbon	AA
R709	VRD-RA2BE681J	R	680 1/8W Carbon	AA
R710	VRN-VV3ABR39J	R	0.39 1W Metal Film	AA
R711	VRN-VV3ABR33J	R	0.33 1W Metal Film	AA
⚠ R712	VRG-PD2HD4R7J	R	4.7 1/2W Fuse Resistor	AC
R713	VRN-MD2AL103J	R	10k 1/10W Metal Film	AA
R714	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R715	VRD-RA2BE331J	R	330 1/8W Carbon	AA
R717	VRD-RM2HD124J	R	120k 1/2W Carbon	AA
R718	VRD-RM2HD124J	R	120k 1/2W Carbon	AA
⚠ R719	VRC-UA2HG825K	R	8.2 M 1/2W SOLID	AA
R721	VRD-RA2BE393J	R	39k 1/8W Carbon	AA
R722	VRD-RM2HD124J	R	120k 1/2W Carbon	AA
R723	VRD-RA2BE684J	R	680k 1/8W Carbon	AA
R724	VRD-RA2BE102J	R	1k 1/8W Carbon	AA
R725	VRD-RA2BE564J	R	560k 1/8W Carbon	AA
⚠ R726	VRC-UA2HG825K	R	8.2 M 1/2W SOLID	AA
R728	VRN-MD2AL272J	R	2.7k 1/10W Metal Film	AA
R750	VRD-RM2HD4R7J	R	4.7 1/2W Carbon	AA
R752	VRD-RA2BE682J	R	6.8k 1/8W Carbon	AA
R753	VRS-VV3LB472J	R	4.7k 3.0W Metal Oxide	AB
R755	VRD-RA2BE222J	R	2.2k 1/8W Carbon	AA
R756	VRN-MD2AL152J	R	1.5k 1/10W Metal Film	AA
R757	VRD-RA2BE182J	R	1.8k 1/8W Carbon	AA
R758	VRD-RA2BE102J	R	1k 1/8W Carbon	AA
R759	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R760	VRD-RA2BE471J	R	470 1/8W Carbon	AA
R761	VRD-RA2BE221J	R	220 1/8W Carbon	AA
R763	VRN-MD2AL472J	R	4.7k 1/10W Metal Film	AA
R764	VRN-MD2AL272J	R	2.7k 1/10W Metal Film	AA
R801	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R802	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R803	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R804	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R805	VRN-MD2AL822J	R	8.2k 1/10W Metal Film	AA

Ref. No.	Part No.	★	Description	Code
R806	VRD-RA2BE123J	R	12k 1/8W Carbon	AA
R807	VRN-MD2AL103J	R	10k 1/10W Metal Film	AA
R808	VRN-MD2AL221J	R	220 1/10W Metal Film	AA
R809	VRD-RA2BE224J	R	220k 1/8W Carbon	AA
R812	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R813	VRN-MD2AL221J	R	220 1/10W Metal Film	AA
R1001	VRD-RA2BE221J	R	220 1/8W Carbon	AA
R1002	VRN-MD2AL331J	R	330 1/10W Metal Film	AA
R1003	VRN-MD2AL471J	R	470 1/10W Metal Film	AA
R1004	VRN-MD2AL821J	R	820 1/10W Metal Film	AA
R1005	VRD-RA2BE181J	R	180 1/8W Carbon	AA
R1011	VRN-MD2AL820J	R	82 1/10W Metal Film	AA
R1012	VRN-MD2AL391J	R	390 1/10W Metal Film	AA
R1013	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R1014	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1015	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R1016	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1017	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R1019	VRN-MD2AL472J	R	4.7k 1/10W Metal Film	AA
R1020	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1021	VRN-MD2AL153J	R	15k 1/10W Metal Film	AA
R1022	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1023	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R1024	VRN-MD2AL122J	R	1.2k 1/10W Metal Film	AA
R1025	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R1026	VRN-MD2AL224J	R	220k 1/10W Metal Film	AA
R1027	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1028	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1030	VRN-MD2AL102J	R	1k 1/10W Metal Film	AA
R1031	VRD-RA2BE562J	R	5.6k 1/8W Carbon	AA
R1032	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R1033	VRD-RA2BE102J	R	1k 1/8W Carbon	AA
R1034	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1035	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R1036	VRN-MD2AL332J	R	3.3k 1/10W Metal Film	AA
R1037	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1038	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1039	VRN-MD2AL223J	R	22k 1/10W Metal Film	AA
R1040	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R1041	VRN-MD2AL101J	R	100 1/10W Metal Film	AA
R1043	VRN-MD2AL153J	R	15k 1/10W Metal Film	AA
R1044	VRN-MD2AL153J	R	15k 1/10W Metal Film	AA
R1045	VRD-RA2BE271J	R	270 1/8W Carbon	AA
R1046	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1065	VRN-MD2AL101J	R	100 1/10W Metal Film	AA

SWITCH

⚠ S701	QSW-P0591CEZZ	R	Switch		AQ
S1001	QSW-K0079GEZZ	J	Switch		AB
S1002	QSW-K0079GEZZ	J	Switch		AB
S1003	QSW-K0079GEZZ	J	Switch		AB
S1004	QSW-K0079GEZZ	J	Switch		AB
S1005	QSW-K0079GEZZ	J	Switch		AB

MISCELLANEOUS PARTS

⚠ ACC701	QACCZ2008PEZZ	R	AC Cord (14A1-A/M/S,14A2-A/M/S,14AG2-S(Y))	AM
⚠ ACC701	QACCZ3008PEZZ	R	AC Cord (14AG1-S,14A2-S(G))	AN
⚠ ACC701	QACCB5003PEZZ	R	AC Cord(14A1-W)	AY
FB306	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB501	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB502	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB602	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB701	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB702	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB751	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB752	RBLN-0037CEZZ	R	Ferrite Bead	AB
⚠ FH701	QFSHD1014CEZZ	R	Fuse Holder	AC
⚠ FH702	QFSHD1013CEZZ	R	Fuse Holder	AC
⚠ F701	QFS-C3229CEZZ	R	Fuse, T3.15A/250V	AD
J402	QJAKE0158CEZZ	R	Jack	AF
J403	QJAKE0159CEZZ	R	Jack	AF
J405	QJAKH0011AJZZ	R	Jack	AK

Ref. No.	Part No.	★	Description	Code
P301	QPLGN0441CEZZ	R	Plug(14A2, 14AG2)	AB
P302	QPLGN0241CEZZ	R	Plug(14A1, 14AG1)	AA
P303	QPLGN0441CEZZ	R	Plug(14A1-A/W,14A2-A)	AB
P502	QPLGN0603CEZZ	R	Plug	AB
P602	QPLGN0641CEZZ	R	Plug	AB
P701	QPLGN0207CEZZ	R	Plug	AA
P712	QPLGN0269GEZZ	R	Plug	AB
P1001	QPLGN0541CEZZ	R	Plug	AB
P1002	QPLGN0541CEZZ	R	Plug	AB
RMC1001	RRMCU0235CEZZ	R	Remote Reciever	AK
TP201	QLUGP0102PEZZ	R	Lug	AA
RDA300	PRDAR0142PEFW	R	Heat Sink, for IC300 (14A1, 14AG1)	AD
RDA300	PRDAR0248PEFW	R	Heat Sink, for IC300 (14A2, 14AG2)	AF
RDA501	PRDAR0283PEFW	R	Heat Sink, for IC501	AF
RDA601	PRDAR0224PEFW	R	Heat Sink, for Q602	AF
RDA700	PRDAR0260PEFW	R	Heat Sink, for IC701	AH

PWB-B DUNTK9990WEV0/V1/V2V3 CRT SOCKET UNIT

TRANSISTORS

Q870	VSBF422////-1	R	BF422	AC
Q871	VSBF422////-1	R	BF422	AC
Q872	VSBF422////-1	R	BF422	AC
Q883	VSBF421////-1	R	BF421	AC
Q885	VSBF421////-1	R	BF421	AC
Q887	VSBF421////-1	R	BF421	AC

DIODES

D811	RH-DX0475CEZZ	R	Diode	AB
D812	RH-DX0475CEZZ	R	Diode	AB
D880	RH-DX0475CEZZ	R	Diode	AB
D881	RH-DX0475CEZZ	R	Diode	AB
D882	RH-DX0475CEZZ	R	Diode	AB
D883	VHD1SS82///1A	R	1SS82	AC
D884	VHD1SS82///1A	R	1SS82	AC
D885	VHD1SS82///1A	R	1SS82	AC
D886	VHD1SS82///1A	R	1SS82	AC
D887	VHD1SS82///1A	R	1SS82	AC
D888	VHD1SS82///1A	R	1SS82	AC

CAPACITORS

C871	VCKYPA1HB471K	R	470p	50V	Ceramic	AA
C872	VCKYPA1HB471K	R	470p	50V	Ceramic	AA
C873	VCKYPA1HB471K	R	470p	50V	Ceramic	AA
C875	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C876	RC-KZ0150CEZZ	R	Capacitor			AB
C878	VCEAGA2EW106M	R	10	250V	Electrolytic	AC
C880	VCKYPA1HB471K	R	470p	50V	Ceramic	AA
C881	VCKYPA1HB471K	R	470p	50V	Ceramic	AA
C882	VCKYPA1HB471K	R	470p	50V	Ceramic	AA

RESISTORS

R879	VRD-RA2BE471J	R	470	1/8W	Carbon	AA
R880	VRD-RA2BE471J	R	470	1/8W	Carbon	AA
R881	VRD-RA2BE471J	R	470	1/8W	Carbon	AA
R882	VRS-VV3DB153J	R	15k	2W	Metal Oxide	AA
R883	VRD-RM2HD272J	R	2.7k	1/2W	Carbon	AA
R884	VRS-VV3DB153J	R	15k	2W	Metal Oxide	AA
R885	VRD-RM2HD272J	R	2.7k	1/2W	Carbon	AA
R886	VRS-VV3DB153J	R	15k	2W	Metal Oxide	AA
R887	VRD-RM2HD272J	R	2.7k	1/2W	Carbon	AA
R888	VRD-RA2BE471J	R	470	1/8W	Carbon	AA
R892	VRD-RA2BE102J	R	1k	1/8W	Carbon	AA
R893	VRD-RA2BE102J	R	1k	1/8W	Carbon	AA
R894	VRD-RA2BE102J	R	1k	1/8W	Carbon	AA
R898	VRD-RA2BE471J	R	470	1/8W	Carbon	AA
R899	VRD-RA2BE471J	R	470	1/8W	Carbon	AA

MISCELLANEOUS PARTS

P851	QPLGN0641CEZZ	R	Plug	AB
P882	QPLGN0541CEZZ	R	Plug	AB
⚠ SC881	QSOCV0842CEZZ	R	CRT Socket	AH

Ref. No.	Part No.	★	Description	Code

PWB-C DUNTK9989WEV0(14A1-A/W, 14A2-A)
HEAD PHONE UNIT

RESISTORS

RJ1	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ7	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
RJ8	VRN-MD2AL000J	R	00	1/10W	Metal Film	AA
R354	VRN-MD2AL471J	R	470	1/10W	Metal Film	AA
R355	VRN-MD2AL471J	R	470	1/10W	Metal Film	AA

MISCELLANEOUS PARTS

J351	QJAKJ0047CEZZ	R	Jack	AD
P352	QPLGN0441CEZZ	R	Plug	AB

PWB-D DUNTKA127WEV0
I DEMODULATION UNIT

INTEGRATED CIRCUITS

IC3300	VHiTDA9821/-1	R	I.C.	AR

TRANSISTORS

Q3300	VS2SC1815GW-1	R	2SC1815GW	AB
Q3301	VS2SC1815GW-1	R	2SC1815GW	AB
Q3302	VS2SC1815GW-1	R	2SC1815GW	AB

COIL AND TRANSFORMERS

CF3300	RFiLC0268CEZZ	R	Filter	AD

CAPACITORS

C3300	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C3301	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C3302	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C3303	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C3304	VCEA0A1CW107M	R	100	16V	Electrolytic	AC
C3305	VCQYTA1HM223K	R	0.022	50V	Mylar	AB
C3306	VCKYPA1HB222K	R	2200p	50V	Ceramic	AA
C3310	VCQYTA1HM223K	R	0.022	50V	Mylar	AB
C3312	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C3313	VCQYTA1HM103J	R	0.01	50V	Mylar	AA
C3314	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB
C3315	VCEA0A1HW225M	R	2.2	50V	Electrolytic	AB

RESISTORS

R3302	VRD-RA2BE273J	R	27k	1/8W	Carbon	AA
R3303	VRD-RA2BE153J	R	15k	1/8W	Carbon	AA
R3304	VRD-RA2BE561J	R	560	1/8W	Carbon	AA
R3305	VRD-RA2BE561J	R	560	1/8W	Carbon	AA
R3307	VRD-RA2BE222J	R	2.2k	1/8W	Carbon	AA
R3312	VRD-RA2BE101J	R	100	1/8W	Carbon	AB
R3313	VRD-RA2BE102J	R	1k	1/8W	Carbon	AA
R3314	VRD-RA2BE473J	R	47k	1/8W	Carbon	AA
R3315	VRD-RA2BE473J	R	47k	1/8W	Carbon	AA
R3316	VRD-RA2BE102J	R	1k	1/8W	Carbon	AA
R3317	VRD-RA2BE473J	R	47k	1/8W	Carbon	AA

MISCELLANEOUS PARTS

P3300	QPLGZ0610CEZZ	R	Plug	AB
P3301	QPLGZ0810CEZZ	R	Plug	AD

MISCELLANEOUS PARTS

	QANTR0018PEZZ	R	Rod Antenna (Except 14A1-W)	AQ
SP301	VSP9050PB25WA	R	Speaker	AM
SP302	VSP9050PB25WA	R	Speaker	AM
	QCNW-2377PEZZ	R	Connecting Cord (14A1-A/W)	AE
	QCNW-2378PEZZ	R	Connecting Cord (14A1,14AG1)	AE
	QCNW-2379PEZZ	R	Connecting Cord (14A2,14AG2)	AE
	QCNW-2380PEZZ	R	Connecting Cord (14A2-A)	AE
	QCNW-2413PEZZ	R	Connecting Cord	AE
	QCNW-2423PEZZ	R	Connecting Cord	AE

SUPPLIED ACCESSORIES

ACCESSORIES

	QPLGA0017CEZZ	R	Plug (14AG1-S,14A2-S(G))	AK
	QPLGJ0113CEZZ	R	Plug (Except 14A1-W)	AG
	RRMCG1342PESA	R	Infrared Remote Control Unit	AU
	TiNS-6820PEZZ	R	Operation Manual(14A1-A)	AP
	TiNS-6821PEN1	R	Operation Manual(14AG1-M)	AH
	TiNS-6803PEN1	R	Operation Manual (14A1-S,14AG1-S)	AH
	TiNS-6819PEN1	R	Operation Manual(14A1-W)	AF
	TiNS-6824PEZZ	R	Operation Manual(14A2-A)	AF
	TiNS-6825PEZZ	R	Operation Manual(14AG2-M)	AH
	TiNS-6826PEZZ	R	Operation Manual (14A2-S,14AG2-S(G)/S(Y))	AH

ACCESSORIES (NOT REPLACEMENT ITEM)

	TCAUA0002PEZZ	-	Caution Card —
	TMAPC3999PEN1	-	Circuit Diagram (14A1-S, 14AG1-M/S) —
	TMAPC4015PEN1	-	Circuit Diagram (14A2-S,14AG2-M/S(G)/S(Y)) —
	UBATU0247AJZZ	-	Batteries —

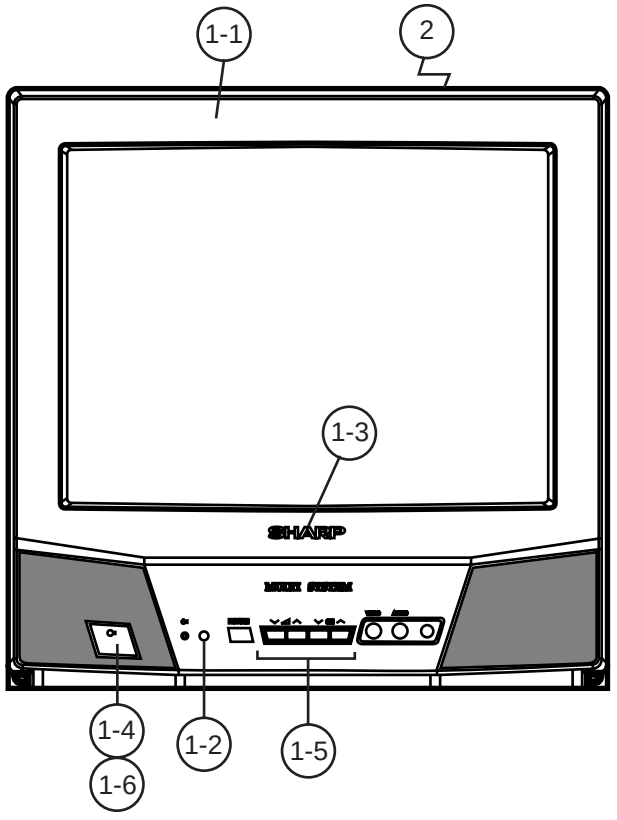
PACKING PARTS

< NOT REPLACEMENT ITEM >

	SPAKC6577PEZZ	-	Packing Case(14A1-A) —
	SPAKC6535PEZZ	-	Packing Case(14A1-S) —
	SPAKC6576PEZZ	-	Packing Case(14A1-W) —
	SPAKC6584PEZZ	-	Packing Case(14A2-A) —
	SPAKC6583PEZZ	-	Packing Case(14A2-S) —
	SPAKC6578PEZZ	-	Packing Case(14AG1-M) —
	SPAKC6612PEZZ	-	Packing Case(14AG1-S) —
	SPAKC6585PEZZ	-	Packing Case(14AG2-M) —
	SPAKC6586PEZZ	-	Packing Case (14AG2-S(G)/S(Y)) —
	SPAKP0056PEZZ	-	Wrapping Paper (14A1-A/W,14A2-A) —
	SPAKX2713PEZZ	-	Buffer Material(14A1,14AG1) —
	SPAKX2724PEZZ	-	Buffer Material(14A2,14AG2) —
	SSAKA0031PEZZ	-	Polyethylene Bag —
	SSAKH0009PEZZ	-	Polyethylene Bag (14A1-S,14AG1-M/S) —
	SSAKH0015PEZZ	-	Polyethylene Bag (14A2-S,14AG2-M/S(G)/S(Y)) —

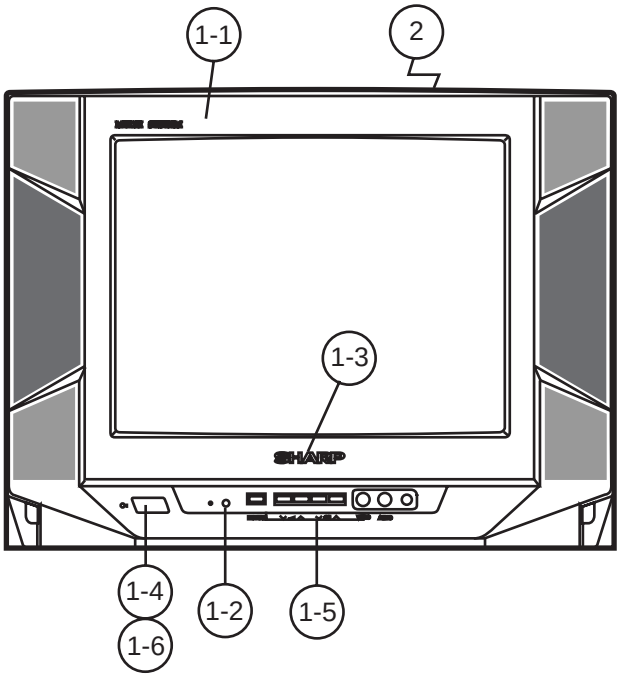
MODEL 14A1,14AG1 CABINET PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABA2540WEV0	R	Front Cabinet Ass'y (14A1-A/W)	BC
1	CCABA2506WEV0	R	Front Cabinet Ass'y (14A1-S)	BC
1	CCABA2506WEV4	R	Front Cabinet Ass'y (14AG1-M/S)	BC
1-1	*Not Available*	-	Front Cabinet (14A1-A/W)	—
1-1	*Not Available*	-	Front Cabinet (14A1-S)	—
1-1	*Not Available*	-	Front Cabinet (14AG1-M/S)	—
1-2	GCOVA0105PESA	R	Cover, R/C LED	AC
1-3	HBDGB0018PESB	R	Badge, "SHARP"	AD
1-4	JBTN-0313PESA	R	Button, Power (14A1)	AC
1-4	JBTN-0313PESB	R	Button, Power (14AG1)	AC
1-5	JBTN-0314PESA	R	Button, Control (14A1)	AD
1-5	JBTN-0314PESB	R	Button, Control (14AG1)	AD
1-6	MSPRC0068CEFW	R	Spring, Power Button	AA
2	GCABB2387PEKA	R	Rear Cabinet(14A1,14AG1)	AU



MODEL 14A2, 14AG2 CABINET PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABA2528WEV0	R	Front Cabinet Ass'y (14A2-S)	BD
1	CCABA2525WEV0	R	Front Cabinet Ass'y (14A2A)	BD
1	CCABA2528WEV3	R	Front Cabinet Ass'y (14AG2-S(Y))	BD
1-1	*Not Available*	-	Front Cabinet (14A2-A)	—
1-1	*Not Available*	-	Front Cabinet (14A2-S)	—
1-1	*Not Available*	-	Front Cabinet (14AG2-M/S(G)/S(Y))	—
1-2	GCOVA0120PESA	R	COVER,	AC
1-3	HBDGB0019PESB	R	BADGE, "SHARP"	AD
1-4	JBTN-0318PESA	R	Button, Power (14A2)	AD
1-4	JBTN-0318PESB	R	Button, Power (14AG2)	AD
1-5	JBTN-0319PESA	R	Button, Control (14A2)	AE
1-5	JBTN-0319PESB	R	Button, Control (14AG2)	AE
1-6	MSPRC0008PEFW	R	Spring, Power Button	AB
2	CCABB2395WEV0	R	Rear Cabinet Ass'y (14A2,14AG2)	AW
2-1	*Not Available*	-	Rear Cabinet (14A2,14AG2)	—



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